DP-IF5100

SERVICE MANUAL

Ver 1.1 2000. 02

US Model
Canadian Model
AEP Model
UK Model
E Model

- Manufactured under license from Dolby Laboratories Licensing Corporation.
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- DP-IF5100 is the component model block one in MDR-DS5100.

COMPONENT MODEL NAME FOR MDR-DS5100

DIGITAL SURROUND PROCESSOR	DP-IF5100
CORDLESS STEREO HEADPHONES	MDR-IF5000

SPECIFICATIONS

Modulation System	Frequency modulation
Carrier wave frequency	Right channel 2.8 MHz Left channel 2.3 MHz
Transmission distance	Approx. 10 m to the front
Transmission range	20 – 20,000 Hz
Distortion rate	1% or less (1 kHz)
Audio inputs	Optical input (rectangular-type) × 1 Analog input (pin jack left/right) × 1
Power requirements	DC 9 V (from the supplied AC power adapter)
Dimensions (w/h/d)	Approx. 85 × 190 × 180 mm (3 3/8 × 7 1/2 × 7 1/8 inch)
Mass	Approx. 1.0 kg (1000 g) (2 lb 30 oz)

Design and specifications are subject to change without notice.

Notes on Chip Component Replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

DIGITAL SURROUND PROCESSOR

SONY®

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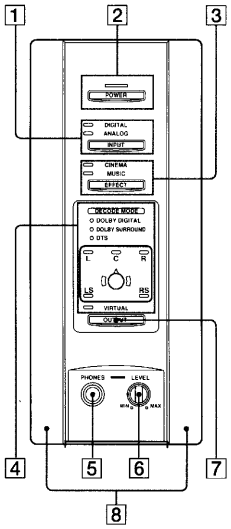
SECTION 1
GENERAL

This section is extracted from instruction manual.

Preparation

Location and Function of Parts

Front Panel of the Digital Surround Processor



1 **DIGITAL input indicator**
ANALOG input indicator
INPUT button
Press to select the input source (DIGITAL/ANALOG).

2 **POWER indicator**
This indicator lights green when you turn on the digital surround processor.
POWER switch
Press to turn on and off the digital surround processor.

3 **CINEMA indicator**
MUSIC indicator
EFFECT button (see page 21 for details)
Press to select the sound field (CINEMA/MUSIC).

4 **Decode mode display** (see page 23 for details)

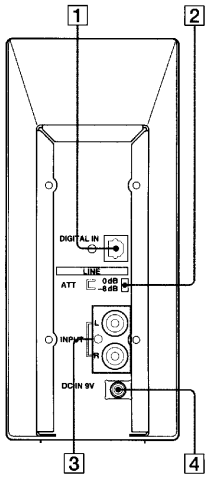
5 **PHONES jack** (see page 27 for details)
Connect your headphones to this jack. Connect the MDR-F1 headphone (sold separately) for optimum surround effect.

6 **PHONES — LEVEL control**
Turn to adjust the volume of the headphones (sold separately) connected to the PHONES jack.

7 **OUTPUT button**
Press to select the output mode (OFF/VIRTUAL FRONT/VIRTUAL SURROUND).

8 **Infrared emitter**
Set the emitter in a position so that there is a straight, unobstructed path to the sensor.

Rear Panel of the Digital Surround Processor



1 **DIGITAL IN jack** (see page 14 for details)
Connect a DVD player, LD player, or other digital component (sold separately) to this jack.

2 **ATT (attenuator) switch**
Set this switch to 0dB when the volume is too low at analog input. Normally, this switch should be set to –8dB.

3 **LINE INPUT jack** (see page 15 for details)
Connect the audio output jack on audio/video equipment (sold separately), such as a video cassette player or TV, to this jack.

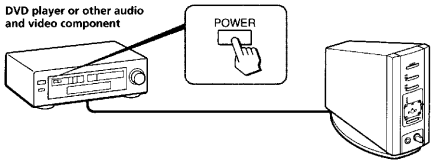
4 **DC IN jack**
Connect the supplied AC power adapter to this jack. (Be sure to use the supplied AC power adapter. Using products with different plug polarity or other characteristics can cause a malfunction.)

(Continued)

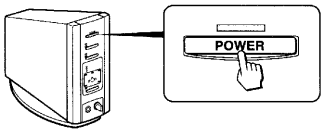
Listening to the Sound of the Connected Component

Before starting operation, be sure to read "Connecting the Headphone System" and make the proper connections.

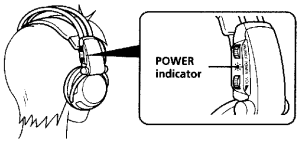
1 **Turn on the component connected to the digital surround processor.**



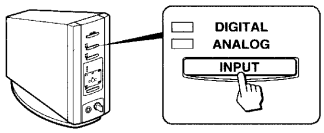
2 **Press POWER to turn on the digital surround processor.**
The POWER indicator lights green.



3 **Put on the headphones.**
The POWER indicator lights red, and the headphones automatically turn on.



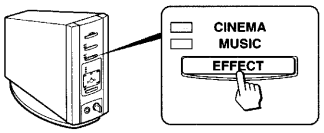
4 **Press INPUT to select the component you want to listen to.**



Indicator light	Selected sound source
DIGITAL	Sound of the component connected to DIGITAL IN jack
ANALOG	Sound of the component connected to LINE INPUT jacks

Note
To listen to dual audio (MAIN/SUB) sound sources, connect to the LINE INPUT jacks, and then select the sound source you want to listen to on the player, TV, or other component.

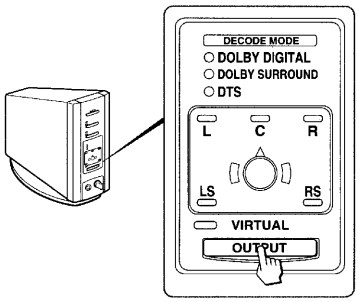
5 **Press EFFECT to select the desired sound field.**

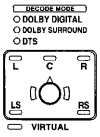
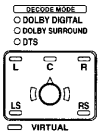
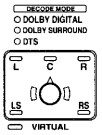


Indicator light	Sound field and suitable sound source
CINEMA	Mode which reproduces the sound field of a movie theater. This mode is suitable for movie sound sources.
MUSIC	Mode which reproduces the sound field of a listening room with good acoustic environment. This mode is suitable for music sources.

(Continued)

6 **Press OUTPUT to select the output mode (surround effect).**

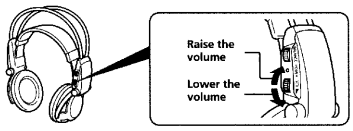


Indicator light	Output mode (surround effect)
	**OFF** Regular headphone playback.
	**VIRTUAL FRONT** Virtual effect where the sound seems to be coming from two speakers (right and left) located in front of you.
	**VIRTUAL SURROUND** Virtual surround effect where the sound seems to be coming from not only two front speakers (right and left), but also from one center speaker, two rear speakers (right and left), and a subwoofer (when DOLBY DIGITAL and DTS are lit). The digital surround processor automatically identifies and processes according to the format of the input audio signal. When DOLBY DIGITAL indicator is on: Audio recorded in Dolby Digital 5.1ch format is being processed. When DOLBY SURROUND indicator is on: Audio recorded in Dolby Surround (Pro Logic) format is being processed. When DTS indicator is on: Audio recorded in DTS 5.1ch format is being processed.

Notes

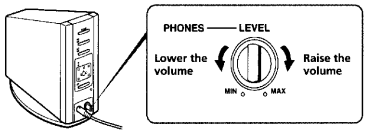
- The processor automatically recognizes the decode mode (DOLBY DIGITAL/DOLBY SURROUND/DTS), and the respective indicator light turns on. Select Dolby Digital or DTS audio for the audio output at the connected player.
- The decode mode becomes DOLBY SURROUND in the following cases.
  – When the signal received by digital input is PCM
  – During analog input

7 **Adjust the volume.**



To adjust the volume of headphones (sold separately) connected to the PHONES jack

Turn PHONES—LEVEL to adjust the volume.



Note

When watching movies, be careful not to raise the volume too high in quiet scenes. You can hurt your ears when a loud scene is played.

(Continued)

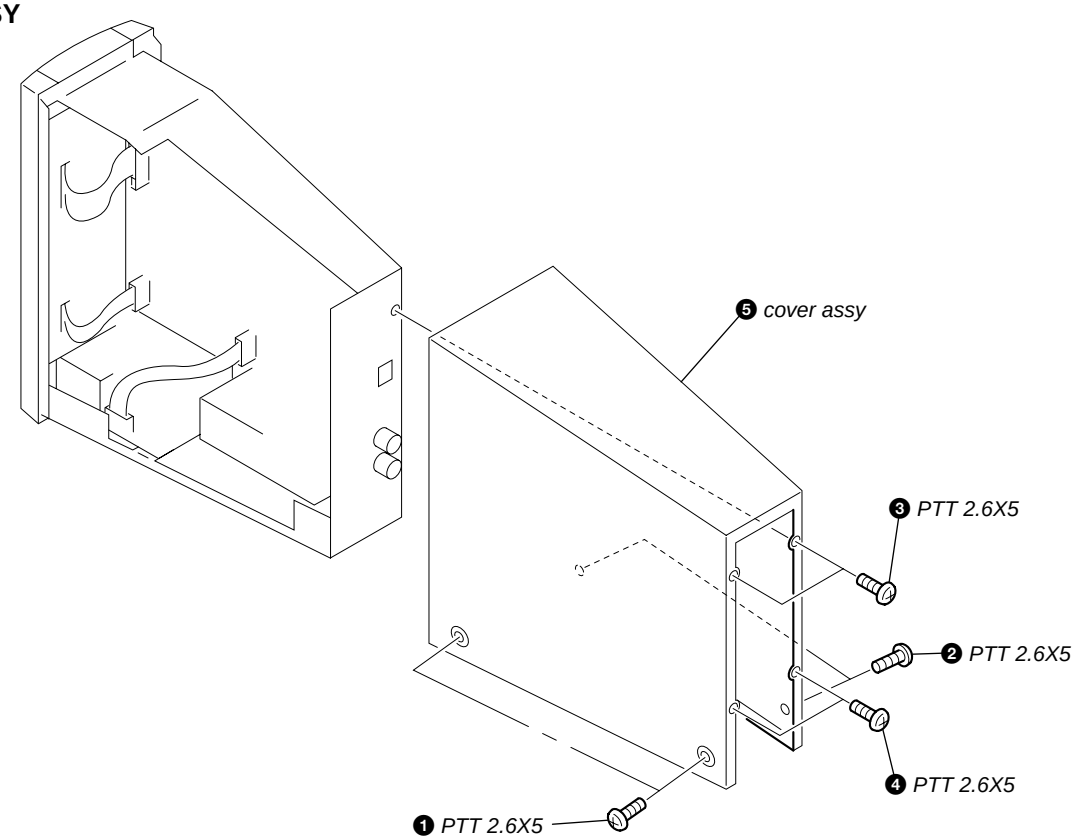
SECTION 2
DISASSEMBLY

• The equipment can be removed using the following procedure.

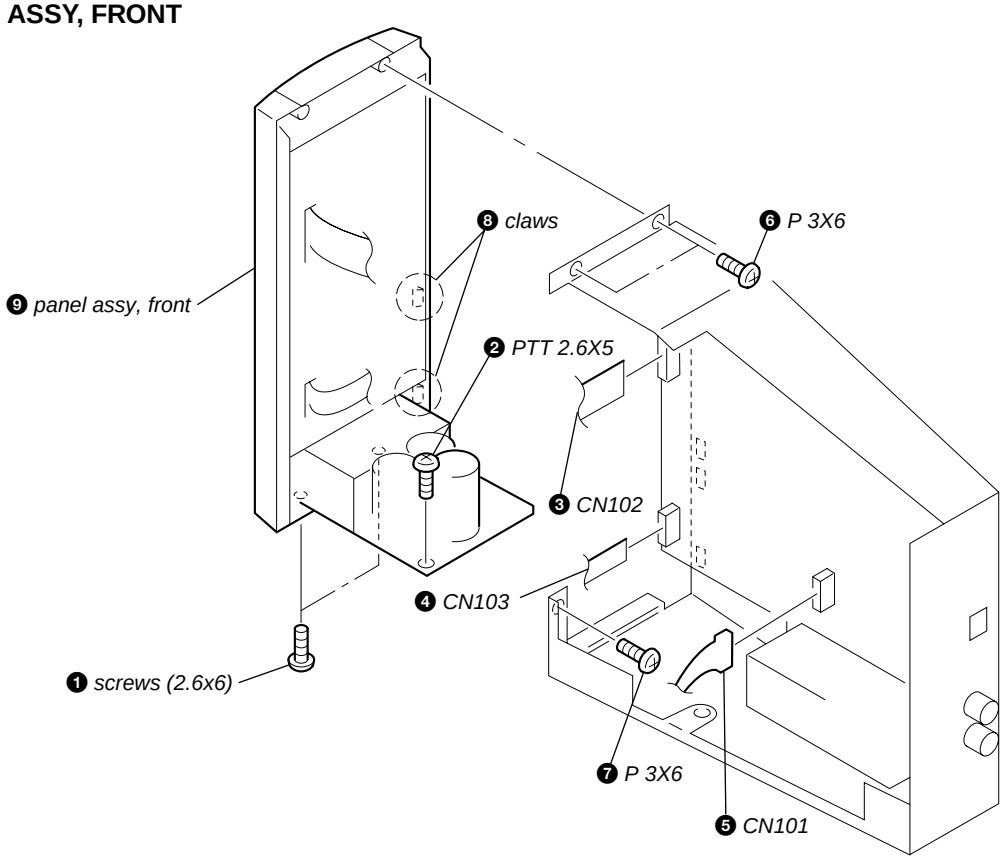
Set → Cover assy → Panel assy, front → Panel assy, sub
                                    → TX board

Note : Follow the disassembly procedure in the numerical order given.

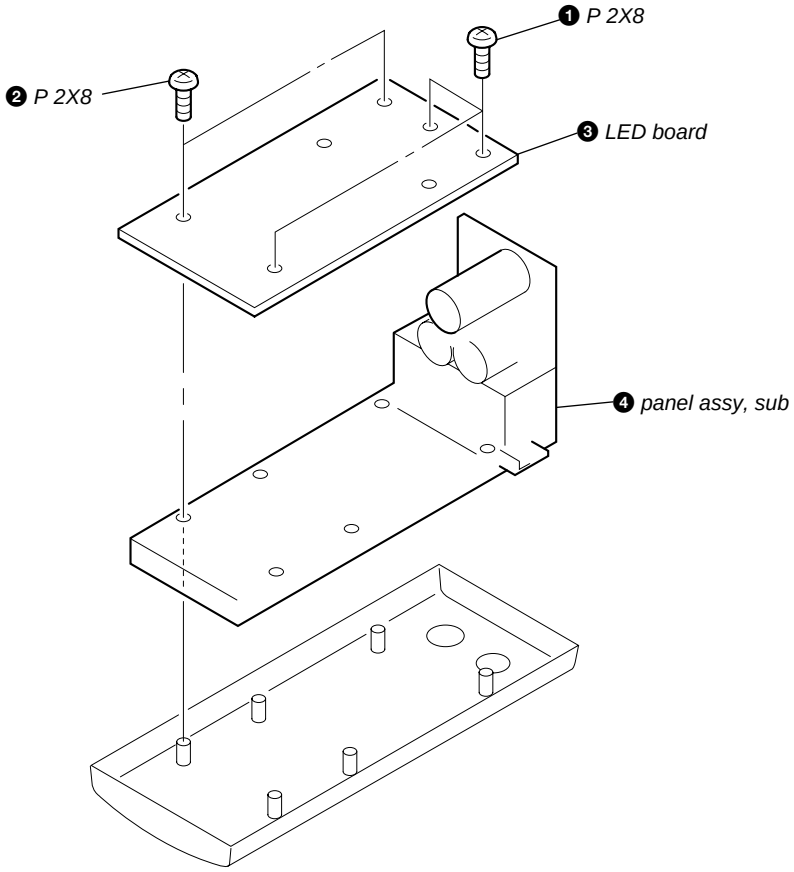
2-1. COVER ASSY



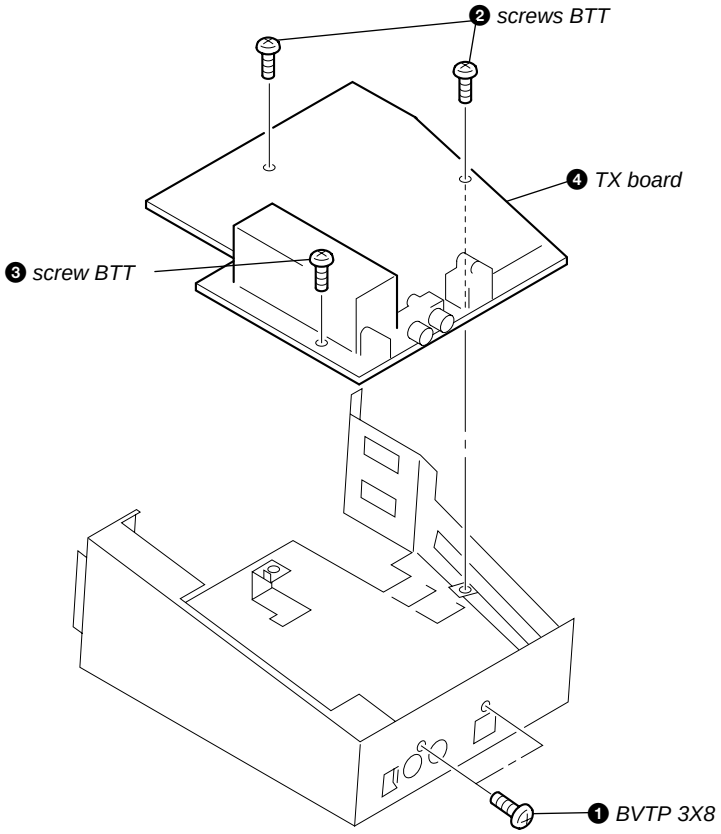
2-2. PANEL ASSY, FRONT



2-3. PANEL ASSY, SUB



2-4. TX BOARD



SECTION 3
SERVICE MODE

3-1. GENERAL

This set has the test mode of the built-in microprocessor which allows various check items required repairing.

3-2. SETTING THE TEST MODE

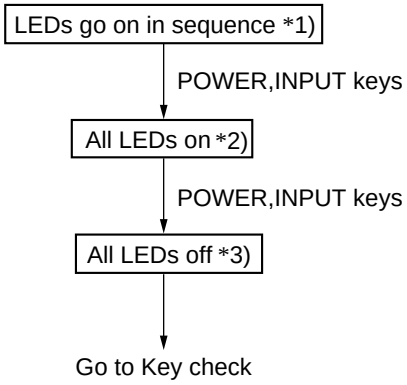
Press the POWER key and the EFFECT key at the same time and turn on the power. (Insert the DC plug)

3-3. RELEASING THE TEST MODE

Remove the DC plug.

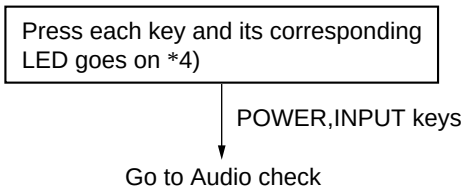
3-4. TEST MODE

1. LED check



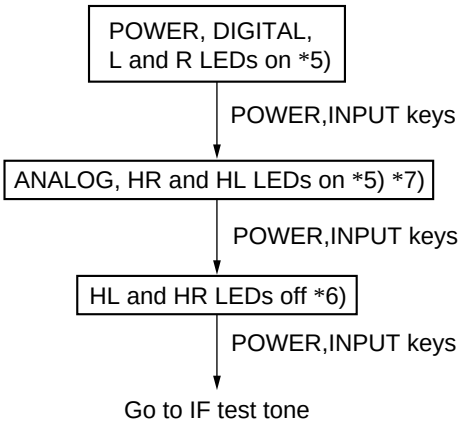
*1) In test mode
*2) All infrared LEDs on
*3) All infrared LEDs on

2. Key check

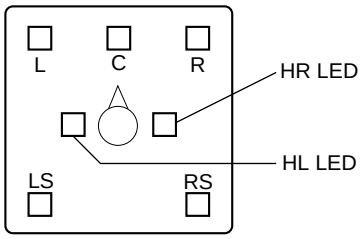


*4) Corresponding LEDs
POWER key : POWER LED
INPUT key : ANALOG LED
EFFECT key : MUSIC LED
OUTPUT key : VIRTUAL LED

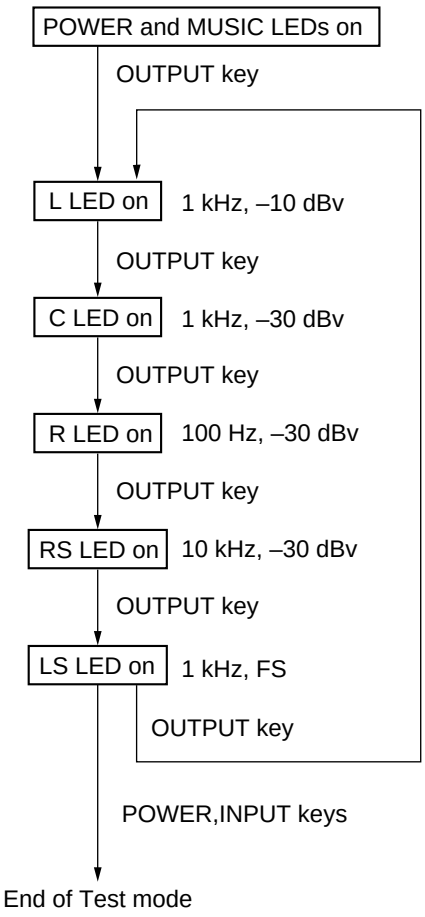
3. Audio check


POWER, DIGITAL, L and R LEDs on *5)
POWER,INPUT keys
ANALOG, HR and HL LEDs on *5) *7)
POWER,INPUT keys
HL and HR LEDs off *6)
POWER,INPUT keys
Go to IF test tone

*5) Digital input check : Do not use this in repair.
*6) Analog input check : Other than MUTE check, do not use this in repair.
*7) Mute mode : Use this in electrical adjustment (see page 8).
*8)



4. IF test tone

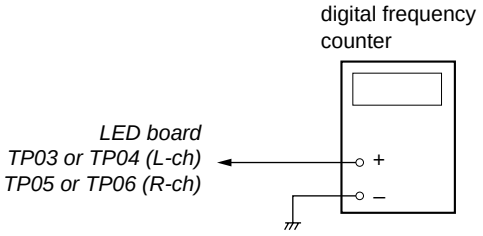


SECTION 4
ELECTRICAL ADJUSTMENTS

Notes:
1. These adjustments are performed in the order that they are described.
2. Adjustment and measurement are performed for each channel unless otherwise specified.
3. Adjustment is made for the right channel first and then the left channel.
4. The power voltage is supplied with 9 V.

Oscillation Frequency Adjustment

Setting:



Adjustment method:

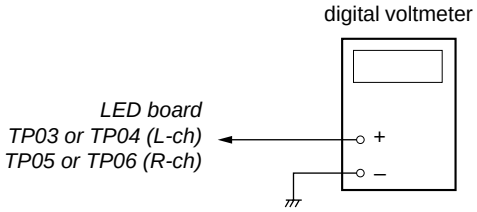
• Perform this adjustment without signal.
1. Connect TP (A MUTE) to ground on the TX board (to set the mute state), or use the test mode to set the mute state (see page 7).
2. Connect a digital frequency counter to TP03 or TP04 for L-ch and TP05 or TP06 for R-ch on the LED board.
3. Adjust L51 (L-ch) and L1 (R-ch) on the TX board so that the reading on the digital frequency counter is each within 2.3 MHz (L-ch) and 2.8 MHz (R-ch).

Specified value:

L-ch	L51	2.298 to 2.302 MHz
R-ch	L1	2.798 to 2.802 MHz

RF Level Adjustment

Setting:



Adjustment method:

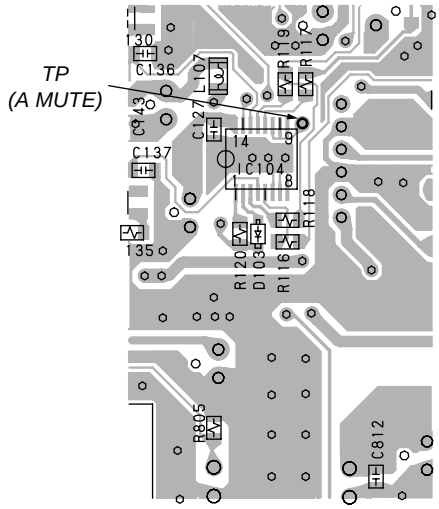
• Perform this adjustment without signal.
1. Connect TP L (L-ch) and TP R (R-ch) to ground on the LED board (to set the mute state), or use the test mode to set the mute state (see page 7).
2. Connect a digital voltmeter to TP03 or TP04 for L-ch and TP05 or TP06 for R-ch on the LED board.
3. Adjust RV51 (L-ch) and RV1 (R-ch) on the TX board so that the reading on the digital voltmeter is 480 mV.

Specified value:

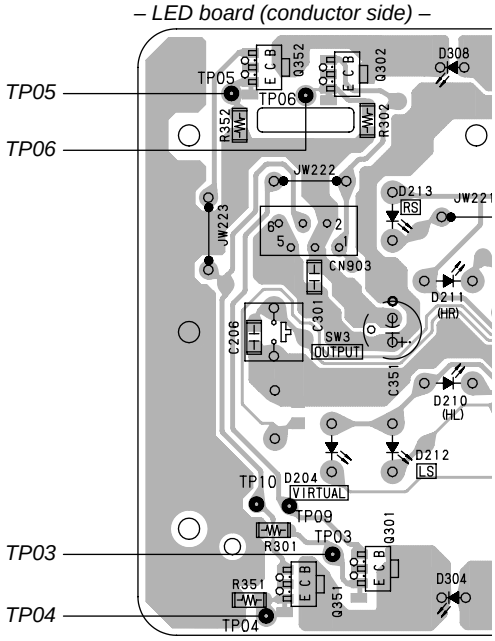
L-ch	RV51	477.5 to 482.5 mV
R-ch	RV1	477.5 to 482.5 mV

Adjustment Location:

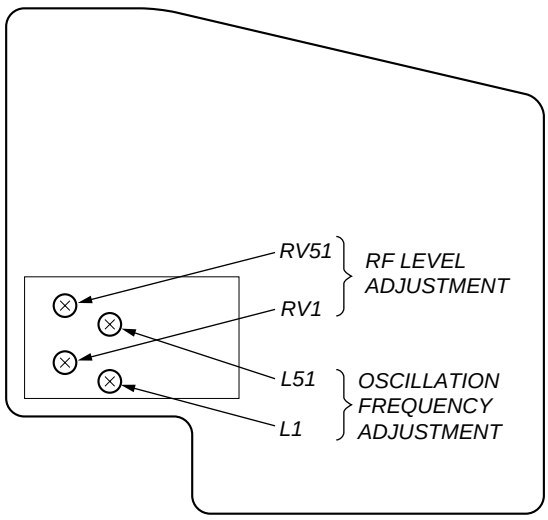
– TX board (side A) –



– LED board (conductor side) –



– TX board (side A) –



SECTION 5
DIAGRAMS

5-1. IC PIN DESCRIPTIONS

5-1-1. IC201 µPD784216 (PROGRAM, SYSTEM CONTROL)

Pin No.	Pin Name	I/O	Pin Description
1	RTP0/P120	O	Analog circuit block mute signal output (H: Mute)
2	RTP1/P121	O	D/A mute signal output (H: Mute)
3	RTP2/P122	O	IF circuit block power control signal output (H: ON)
4	RTP3/P123	O	Main circuit block power control signal output (H: ON)
5	RTP4/P124	O	DIR block clock select signal output (H: Digital, L: Analog)
6	RTP5/P125	O	DIR serial select signal output
7	RTP6/P126	—	Not used. (Open)
8	RTP7/P127	—	Not used. (Open)
9	VDD	I	Power supply pin
10	X2	O	Connect to crystal for main system clock oscillator
11	X1	I	Connect to crystal for main system clock oscillator
12	VSS	—	Ground
13	XT2	—	Not used. (Open)
14	XT1	—	Not used. (Fix to “L”.)
15	$\overline{\text{RESET}}$	I	Reset signal input
16	INTP0/P00	I	DIR audio data detect signal input
17	INTP1/P01	—	Not used. (Open)
18	INTP2/P02	O	Sub DSP serial select signal output
19	INTP3/P03	O	Decoder serial select signal output
20	INTP4/P04	O	Main DSP serial select signal output
21	INTP5/P05	O	SLAVE reset signal output
22	INTP6/P06	I	DIR lock signal input
23	AVDD	I	Power supply pin
24	AVREF0	—	Ground
25	ANI0/P10	I	DSP serial BUSY 5 V signal input
26	ANI1/P11	—	Not used. (Open)
27	ANI2/P12	I	Not used. (Open)
28	ANI3/P13	I	Not used. (Open)
29	ANI4/P14	I	Not used. (Open)
30	ANI5/P15	I	Auto mute detect signal (L: OFF, H: ON)
31	ANI6/P16	—	Not used. (Open)
32	ANI7/P17	I	Audio input level signal input
33	AVSS	—	Analog ground
34	ANO0/P130	—	Not used. (Open)
35	ANO1/P131	—	Not used. (Open)
36	AVREF1	I	Power supply pin
37	SI2	I	Main serial data signal input
38	SO2	O	Main serial data signal output
39	$\overline{\text{SCK2}}$	O	Main serial clock signal output
40	SI1	I	Main serial data signal input
41	SO2	O	Not used. (Open)
42	$\overline{\text{SCK1}}$	O	Main serial clock signal output
43	PCL/P23	O	Main DSP reset signal output
44	BUZ/P24	—	Not used.
45	SI0	I	LED/FLASH serial data signal input
46	SO0	O	LED/FLASH serial data signal output
47	$\overline{\text{SCK0}}$	O	LED/FLASH serial clock signal output
48	A0/P80	O	Main DSP mute signal output
49	A1/P81	O	Not used. (Main DSP ATT setting bit HIGH)
50	A2/P82	O	Not used. (Main DSP ATT setting bit LOW)
51	A3/P83	O	Main DSP ALC ON signal output

Pin No.	Pin Name	I/O	Pin Description
52	A4/P84	O	Main DSP VR setting bit HIGH signal output
53	A5/P85	O	Main DSP VR setting bit LOW signal output
54	A6/P86	O	Reserve terminal (Fix to “L”.)
55	A7/P87	O	Reserve terminal (Fix to “L”.)
56 – 63	AD0 – 7/P40 – 47	—	Not used. (Open)
64	A8/P50	O	Not used. (Open) (LED 0)
65	A9/P51	O	Not used. (Open) (LED 1)
66	A10/P52	O	Not used. (Open) (LED 2)
67	A11/P53	O	Not used. (Open) (LED 3)
68 – 71	A12 – 15/P54 – 57	—	Not used. (Open)
72	VSS	—	Ground
73	A16/P60	I	Power on/off key input
74	A17/P61	I	INPUT key input
75	A18/P62	I	EFFECT key input
76	A19/P63	I	OUTPUT key input
77	$\overline{\text{RD}}$/P64	I	Jump key input
78	$\overline{\text{WR}}$/P65	I	Not used. (Open)
79	$\overline{\text{WAIT}}$/P66	I	Not used. (Open)
80	ASTB/P67	I	Not used. (Open)
81	VDD	I	Power supply pin
82	T05/P100	O	LEDEN signal output
83	T06/P101	O	LEDLAT signal output
84	T07/P102	O	LEDRESET signal output
85	T08/P103	—	Not used. (Open)
86	T00/P30	—	Not used. (Open)
87	T01/P31	—	Not used. (Open)
88	T02/P32	—	Not used. (Open)
89	T03/P33	—	Not used. (Open)
90	T04/P34	—	Not used. (Open)
91	TI00/P35	—	Not used. (Open)
92	TI01/P36	—	Not used. (Open)
93	P37	—	Not used. (Open)
94	VPP	I	VPP signal input
95 – 100	P90 – 95	—	Not used. (Open)

5-1-2. IC301 CXD9511AQ (DOLBY DIGITAL (AC-3)/PRO LOGIC, DTS DECODER)

Pin No.	Pin Name	I/O	Pin Description
1	VDD1	I	Power supply pin (+5 V)
2	RAMCEN	—	Not used. (Open)
3 • 4	RAM16 • 15	—	Not used. (Open)
5	SDIB0	I	PCM signal input
6 • 7	SDIB1 • 2	—	Not used. (Open)
8	XI	I	External system clock signal input (12.288 MHz)
9	XO	—	Not used. (Open)
10	VSS	—	Ground
11	AVDD	I	Power supply pin (+3.3 V)
12	SDIB3	—	Not used. (Open)
13 • 14	TEST	—	Test pin
15	OVFB	—	Not used. (Open)
16	DTSDATA	—	Not used. (Open)
17	AC3DATA	—	Not used. (Open)
18	SPDOB3	—	Not used. (Open)
19	CPO	O	PLL signal output
20	AVSS	—	Ground
21	ADD2	I	Power supply pin
22	SDOA2	O	PCM signal output (C, LFE output)
23	SDOA1	O	PCM signal output (LS, RS output)
24	SDOA0	O	PCM signal output (L, R output)
25 – 29	RAMA14 – 10	—	Not used. (Open)
30	VSS	—	Ground
31	VDD1	I	Power supply pin (+5 V)
32 – 39	OPORT0 – 7	—	Not used. (Open)
40	VSS	—	Ground
41	VDD2	I	Power supply pin (+3.3 V)
42 – 44	RAMA9 – 7	—	Not used. (Open)
45	SDOB2	—	Not used. (Open)
46	SDOB1	O	PCM signal output
47	SDOB0	O	PCM signal output
48	SDBCK1	—	Not used. (Open)
49	SDWCK1	—	Not used. (Open)
50	VSS	—	Ground
51	VDD2	I	Power supply pin (+3.3 V)
52	NONPCM	—	Not used. (Open)
53	CRC	—	Not used. (Open)
54	MUTE	O	Auto mute detect signal output
55	KARAOKE	—	Not used. (Open)
56	SCRENC	—	Not used. (Open)
57	SDBCK0	O	SDBCK0 turn over clock signal output
58 • 59	RAMA6 • 5	—	Not used. (Open)
60	VSS	—	Ground
61	RAMA4	—	Not used. (Open)
62	IC	I	Initial clear terminal
63	TEST	—	Test pin
64	RAMA3	—	Not used. (Open)
65	CSB	I	Sub DSP chip select signal input
66	$\overline{CS}$	I	Interface chip select signal input
67	SO	O	Interface data signal output
68	SI	I	Interface and sub DSP data signal input
69	SCK	I	Interface and sub DSP clock signal input

Pin No.	Pin Name	I/O	Pin Description
70	RAMA2	—	Not used. (Open)
71	VDD1	I	Power supply pin (+5 V)
72 – 79	RAMD0 – 7	—	Not used. (Open)
80	VSS	—	Ground
81	VDD2	I	Power supply pin (+3.3 V)
82	SDWCK0	I	SDIA, SDOA, SDIB and SDOB signal word clock signal input
83	SDBCK0	I	SDIA, SDOA, SDIB and SDOB signal bit clock signal input
84	SDIA0	I	AC-3/DTS bitstream (or PCM) data signal input
85	SDIA1	I	AC-3/DTS bitstream (or PCM) data signal input
86 • 87	RAMA1 • 0	—	Not used. (Open)
88	RAMWEN	—	Not used. (Open)
89	RAMOEN	—	Not used. (Open)
90	VSS	—	Ground
91	VDD2	I	Power supply pin (+3.3 V)
92 • 93	IPORT7 • 6	I	Input port resister pin
94 – 99	IPORT5 – 0	—	Not used. (Open)
100	VSS	—	Ground

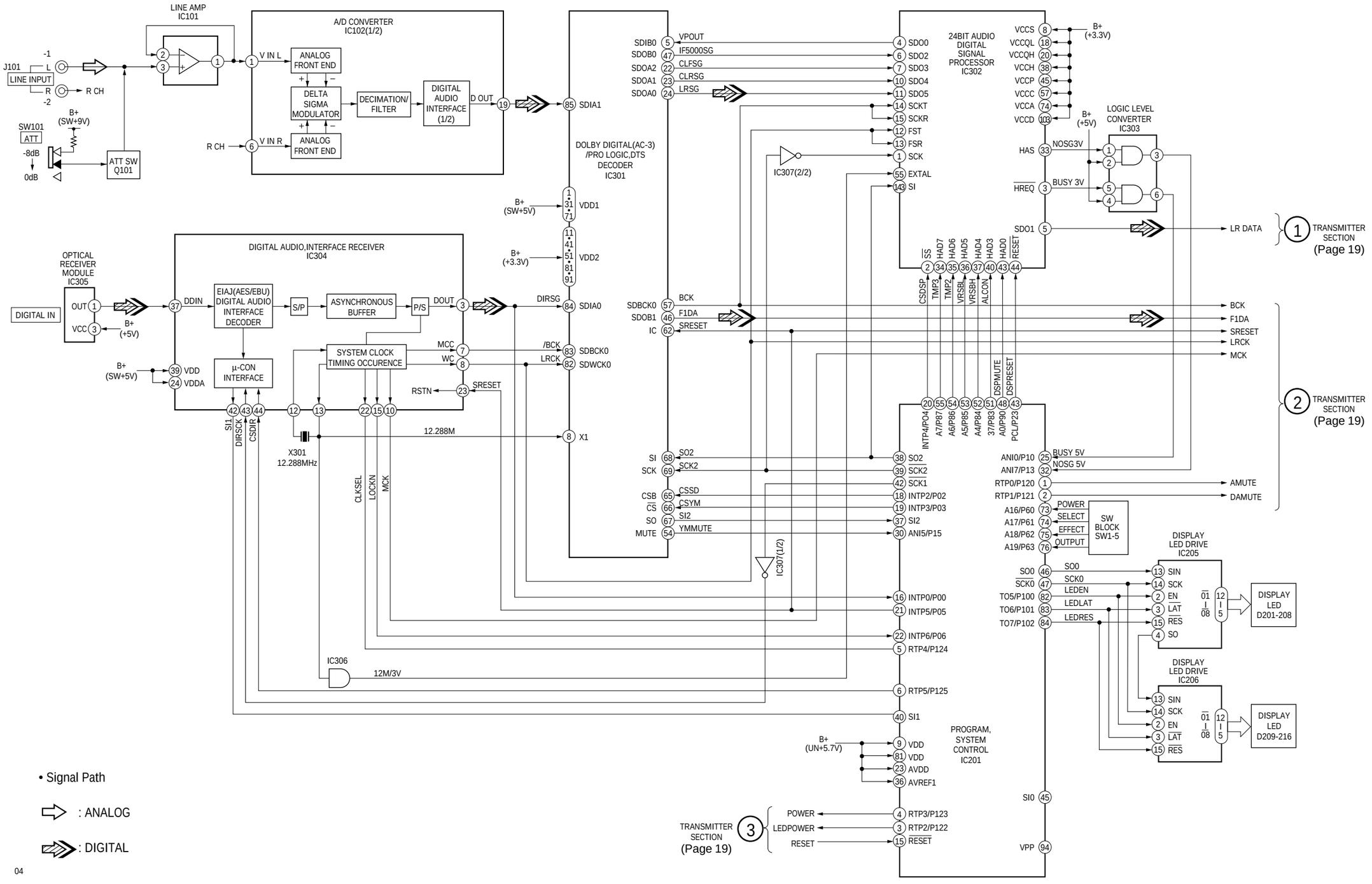
5-1-3. IC302 XCB56362PV100 (24 BIT AUDIO DIGITAL SIGNAL PROCESSOR)

Pin No.	Pin Name	I/O	Pin Description
1	SCK	I	SPI serial clock signal input
2	$\overline{SS}$	I	SPI SLAVE select signal input
3	$\overline{HREQ}$	O	Host request signal output
4	SDO0	O	Serial data signal output
5	SDO1	O	Serial data signal output
6	SDO2	O	Serial data signal output
7	SDO3	O	Serial data signal output
8	VCCS	I	Power supply pin
9	GNDS	—	Ground
10	SDO4	O	Serial data signal output
11	SDO5	O	Serial data signal output
12	FST	I	Transmitter frame sync signal input
13	FSR	I	Receiver frame sync signal input
14	SCKT	I	Transmitter serial clock signal input
15	SCKR	I	Receiver serial clock signal input
16	HCKT	—	Not used. (Open)
17	HCKR	—	Not used. (Open)
18	VCCQL	I	Power supply pin
19	GNDQ	—	Ground
20	VCCQL	I	Power supply pin
21	$\overline{HDS}$	—	Not used. (Open)
22	HRW	—	Not used. (Open)
23	$\overline{HACK}$	—	Not used. (Open)
24	$\overline{HOREQ}$	—	Not used. (Open)
25	VCCS	I	Power supply pin
26	GNDS	—	Not used. (Open)
27	ADO	—	Not used. (Open)
28	ACI	—	Not used. (Open)
29	TIO0	I	Timer schmitt trigger signal input
30	$\overline{HCS}$	—	Not used. (Open)
31	HA9	—	Not used. (Open)
32	HA8	—	Not used. (Open)
33	HAS	O	Host address strobe signal output
34	HAD7	—	Not used.
35	HAD6	—	Not used.
36	HAD5	I	Host address signal input
37	HAD4	I	Host address signal input
38	VCCH	I	Power supply pin
39	GNDH	—	Ground
40	HAD3	I	Host address signal input
41	HAD2	I	Host address signal input
42	HAD1	I	Host address signal input
43	HAD0	I	Host address signal input
44	$\overline{RESET}$	I	Reset signal input
45	VCCP	I	Power supply pin
46	PCAP	I	PLL capacitor connecting pin
47	GNDP	—	Ground
48	GNDP1	—	Ground
49	VCCQH	I	Power supply pin
50 • 51	AA3 • 2	—	Not used. (Open)
52	$\overline{CAS}$	—	Not used. (Open)
53	$\overline{DE}$	—	Not used. (Open)

Pin No.	Pin Name	I/O	Pin Description
54	GNDQ	—	Ground
55	EXTAL	I	External clock signal input (12.288 MHz)
56	VCCQL	I	Power supply pin
57	VCCC	I	Power supply pin
58	GNDC	—	Ground
59	CLKOUT	—	Not used. (Open)
60	NC	—	Not used. (Open)
61	PINIT	—	Ground
62	$\overline{TA}$	—	Ground
63	$\overline{BR}$	—	Not used. (Open)
64	$\overline{BB}$	I	Bus BUSY signal input
65	VCCC	I	Power supply pin
66	GNDC	—	Ground
67	$\overline{WR}$	—	Not used. (Open)
68	$\overline{RD}$	—	Not used. (Open)
69 • 70	AA1 • 0	—	Not used. (Open)
71	$\overline{BG}$	—	Ground
72 • 73	A0 • 1	—	Not used. (Open)
74	VCCA	I	Power supply pin
75	GNDA	—	Ground
76 – 79	A2 – 5	—	Not used. (Open)
80	VCCA	I	Power supply pin
81	GNDA	—	Ground
82 – 85	A6 – 9	—	Not used. (Open)
86	VCCA	I	Power supply pin
87	GNDA	—	Ground
88 • 89	A10 • 11	—	Not used. (Open)
90	GNDQ	—	Ground
91	VCCQL	I	Power supply pin
92 – 94	A12 – 14	—	Not used. (Open)
95	VCCQH	I	Power supply pin
96	GNDA	—	Ground
97 – 99	A15 – 17	—	Not used. (Open)
100 – 102	D0 – 2	—	Not used. (Open)
103	VCCD	I	Power supply pin
104	GNDD	—	Ground
105 – 110	D3 – 8	—	Not used. (Open)
111	VCCB	I	Power supply pin
112	GNDD	—	Ground
113 – 118	D9 – 14	—	Not used. (Open)
119	VCCD	I	Power supply pin
120	GNDD	—	Ground
121 – 125	D15 – 19	—	Not used. (Open)
126	VCCQL	I	Power supply pin
127	GNDQ	—	Ground
128	D20	—	Not used. (Open)
129	VCCD	I	Power supply pin
130	GNDD	—	Ground
131 – 133	D21 – 23	—	Not used. (Open)
134	MODD	—	Not used. (Fix to “L”.)
135	MODC	I	Mode select/external discontinue request signal input
136	MODB	I	Mode select/external discontinue request signal input
137	MODA	I	Mode select/external discontinue request signal input

Pin No.	Pin Name	I/O	Pin Description
138	$\overline{\text{TRST}}$	—	Not used. (Open)
139	TDO	—	Not used. (Open)
140	TDI	—	Not used. (Open)
141	TCK	I	Test clock input
142	TMS	—	Not used. (Open)
143	SI	I	SPI master data signal input
144	SO	—	Not used. (Open)

5-2. BLOCK DIAGRAMS
5-2-1. BLOCK DIAGRAM — PROCESSOR SECTION —



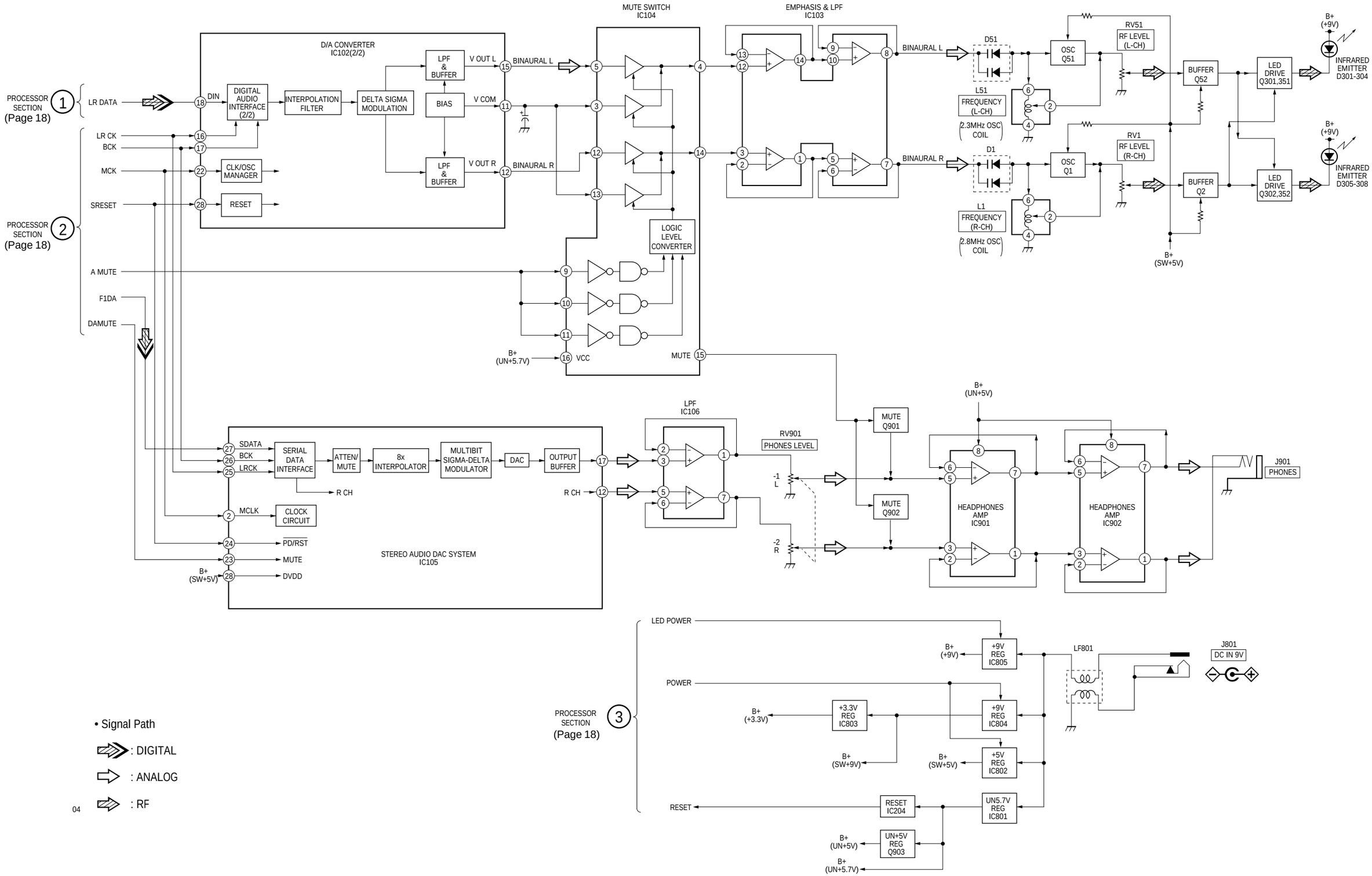
• Signal Path

: ANALOG

: DIGITAL

04

5-2-2. BLOCK DIAGRAM — TRANSMITTER SECTION —



• Signal Path

: DIGITAL

: ANALOG

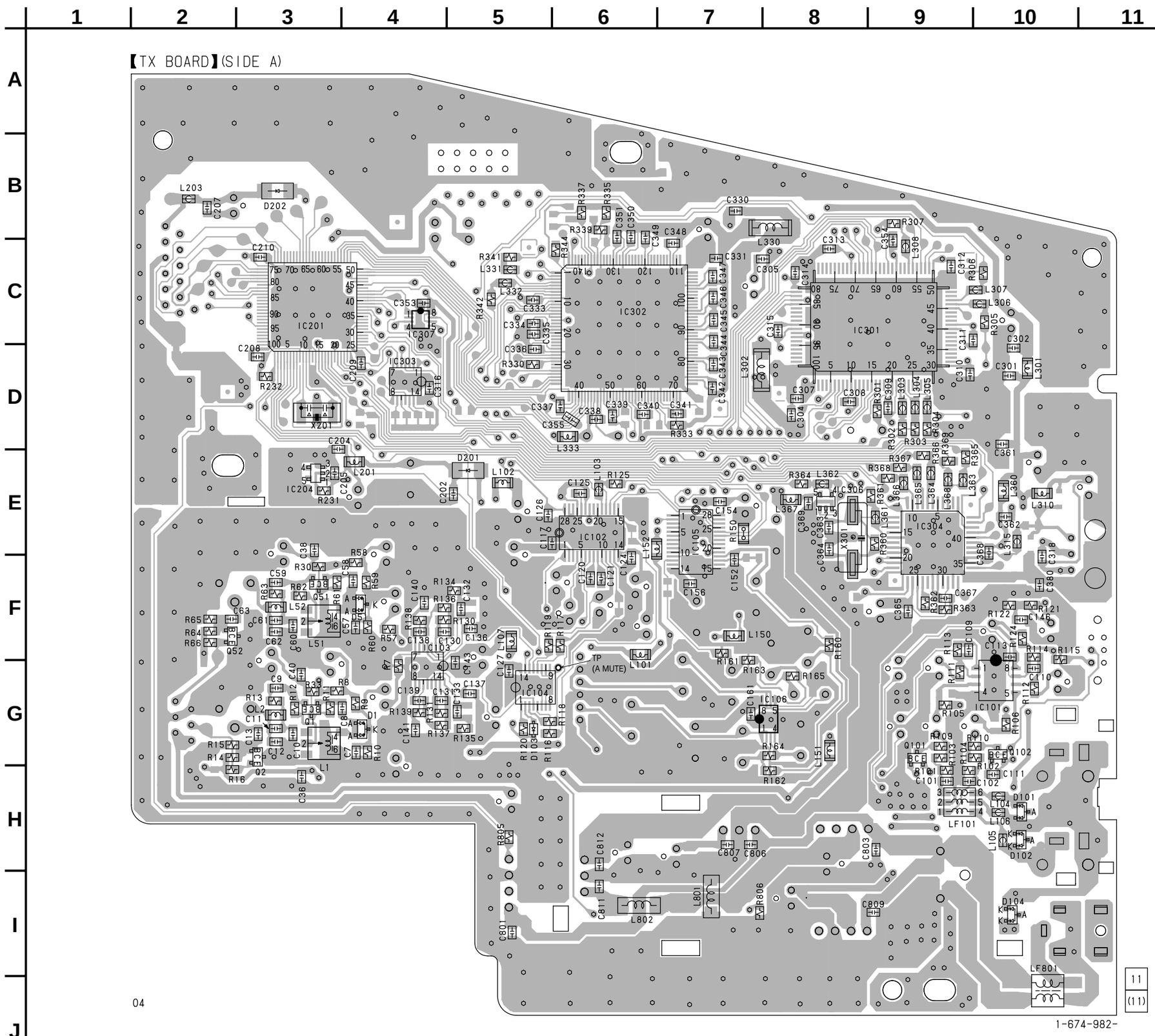
: RF

04

5-3. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS
5-3-1. PRINTED WIRING BOARD — TX BOARD —

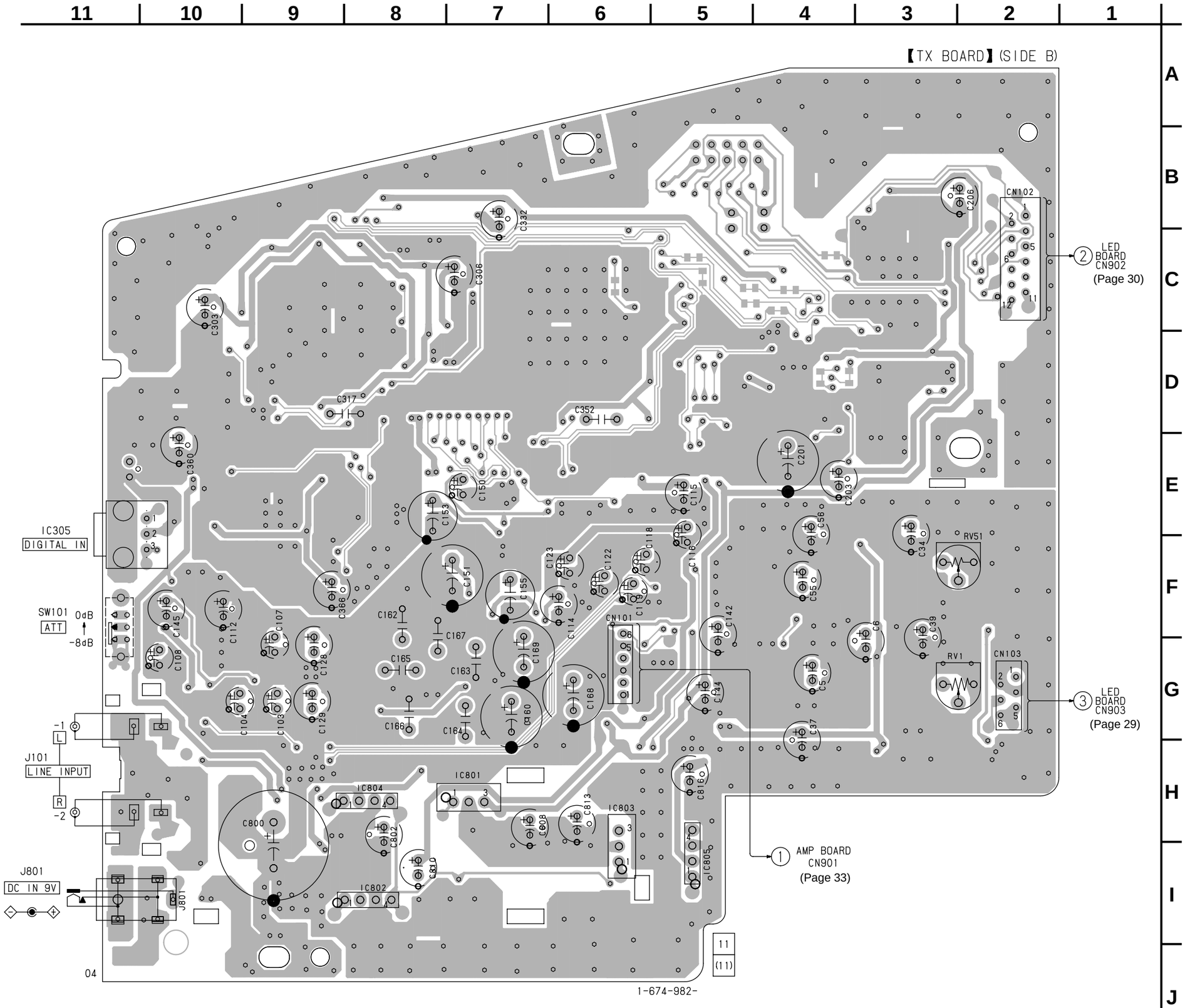
• **Semiconductor Location**

Ref. No.	Location
D1	G-4
D51	F-4
D101	H-10
D102	H-10
D103	G-5
D104	I-10
D201	E-5
D202	B-3
IC101	G-10
IC102	E-6
IC103	F-4
IC104	G-5
IC105	E-7
IC106	G-8
IC201	C-3
IC204	E-3
IC301	D-8
IC302	C-6
IC303	D-4
IC304	E-9
IC306	E-8
IC307	C-4
Q1	G-3
Q2	H-3
Q51	F-3
Q52	F-2
Q101	G-9
Q102	G-10



Note:
• ——○—— : parts extracted from the component side.
• ○ : Through hole.
• ▒▒▒ : Pattern from the side which enables seeing.
(The other layer's patterns are not indicated.)

Caution:
Pattern face side: (Side B) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A) Parts on the parts face side seen from the parts face are indicated.



• **Semiconductor Location**

Ref. No.	Location
IC305	E-11
IC801	H-8
IC802	I-9
IC803	H-6
IC804	H-9
IC805	I-5

• **Waveforms**

① 5Vp-p, 21µsec
IC102 ⑯ (LRCK)

② 4.8Vp-p, 0.3µsec
IC102 ⑰ (BCKIN)

③ 3.2Vp-p, 8MHz
IC201 ⑪ (X1)

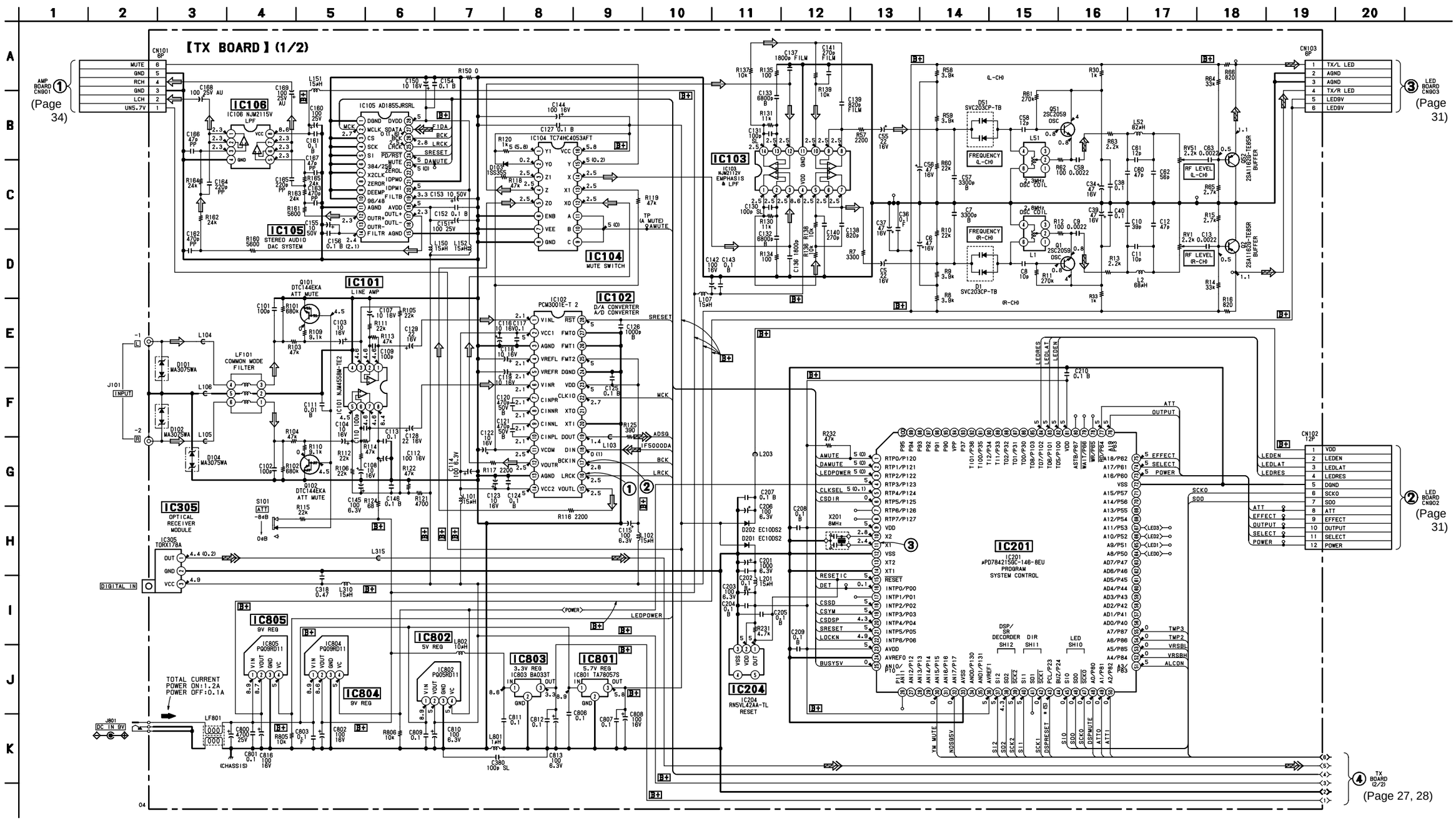
④ 5Vp-p, 0.3µsec
IC301 ㊼ (SDBCK0)

⑤ 5Vp-p, 22µsec
IC302 ⑫ (FST) ⑬ (FSR)

⑥ 5Vp-p, 0.3µsec
IC304 ⑦ (MCC)

⑦ 3.3Vp-p, 12.288MHz
IC304 ⑫ (XI)

5-3-2. SCHEMATIC DIAGRAM — TX BOARD (1/2) — • Refer to page 35 for IC Block Diagrams. • Refer to page 24 for Waveforms.



Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.
- B+ : B+ Line.
- ▬ : adjustment for repair.
- Power voltage is dc 9 V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark : DIGITAL mode
  ( ) : ANALOG mode
  * : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : ANALOG
  ⇛ : RF
  ⇛ : DIGITAL

5-3-3. SCHEMATIC DIAGRAM — TX BOARD (2/2) — • Refer to page 36 for IC Block Diagrams. • Refer to page 24 for Waveforms.

【TX BOARD】(2/2)

Note:
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- B+ : B+ Line.
- Power voltage is dc 9 V and fed with regulated dc power supply from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.

no mark : DIGITAL mode
( ) : ANALOG mode
∗ : Impossible to measure

- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : ANALOG
  ⇛ : RF
  ⇛ : DIGITAL

IC304 YM3436D DIGITAL AUDIO INTERFACE RECEIVER

IC306 TC7SH08FU LOGIC LEVEL CONVERTER

IC303 TC7WHT08AFT LOGIC LEVEL CONVERTER

IC302 XCB56362PV100 24BIT AUDIO DIGITAL SIGNAL PROCESSOR

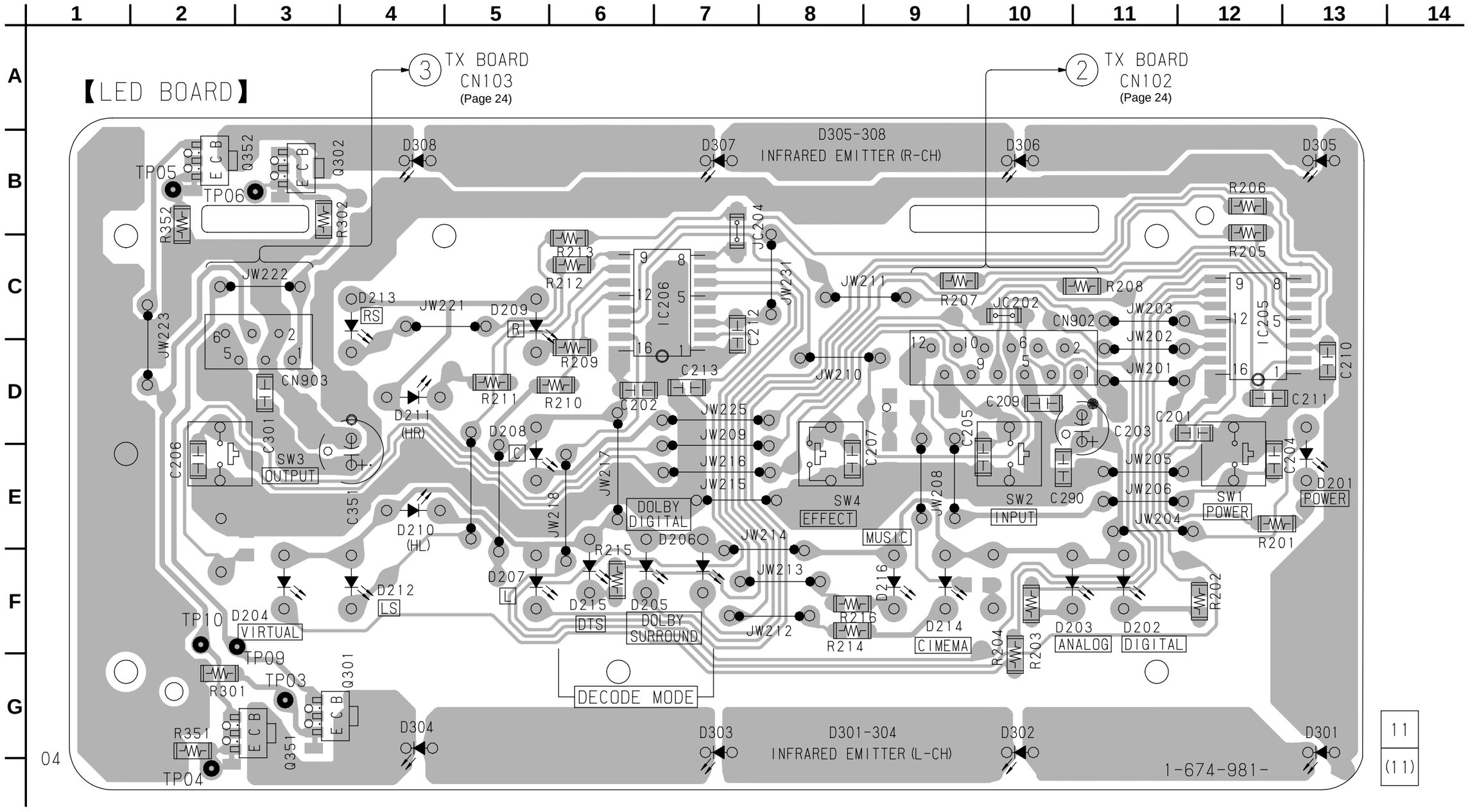
IC301 CXD9511AQ DOLBY DIGITAL (AC-3) /PRO LOGIC. DTS DECODER

IC307 TC7WQ4FU INVERTER

TX BOARD (1/2) (Page 26)

TX BOARD (1/2) (Page 26)

5-3-4. PRINTED WIRING BOARD — LED BOARD —

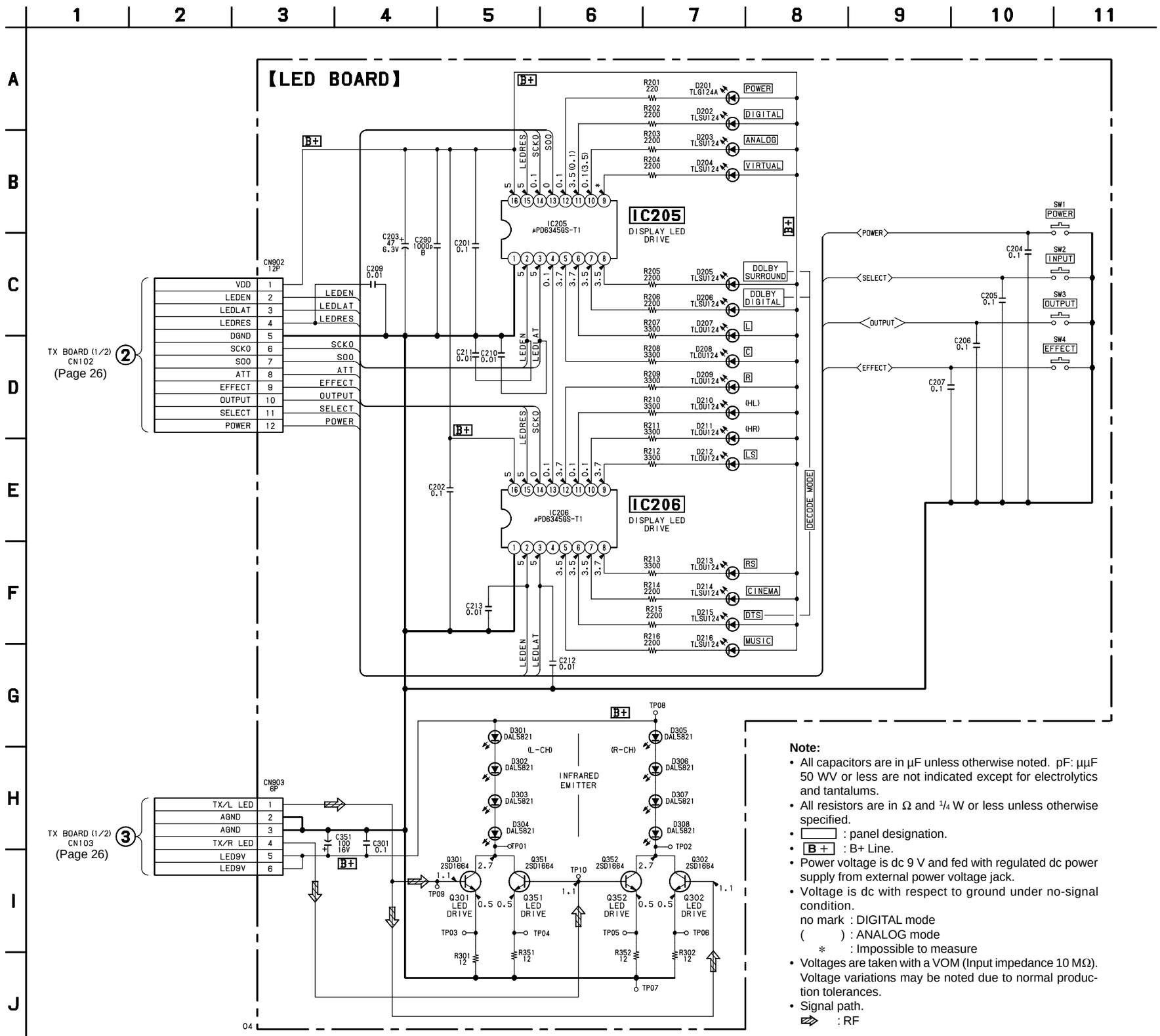


Note:
- ⟜—— : parts extracted from the component side.
- ▒▒▒ : Pattern from the side which enables seeing.

5-3-5. SCHEMATIC DIAGRAM — LED BOARD — • Refer to page 36 for IC Block Diagrams.

• **Semiconductor Location**

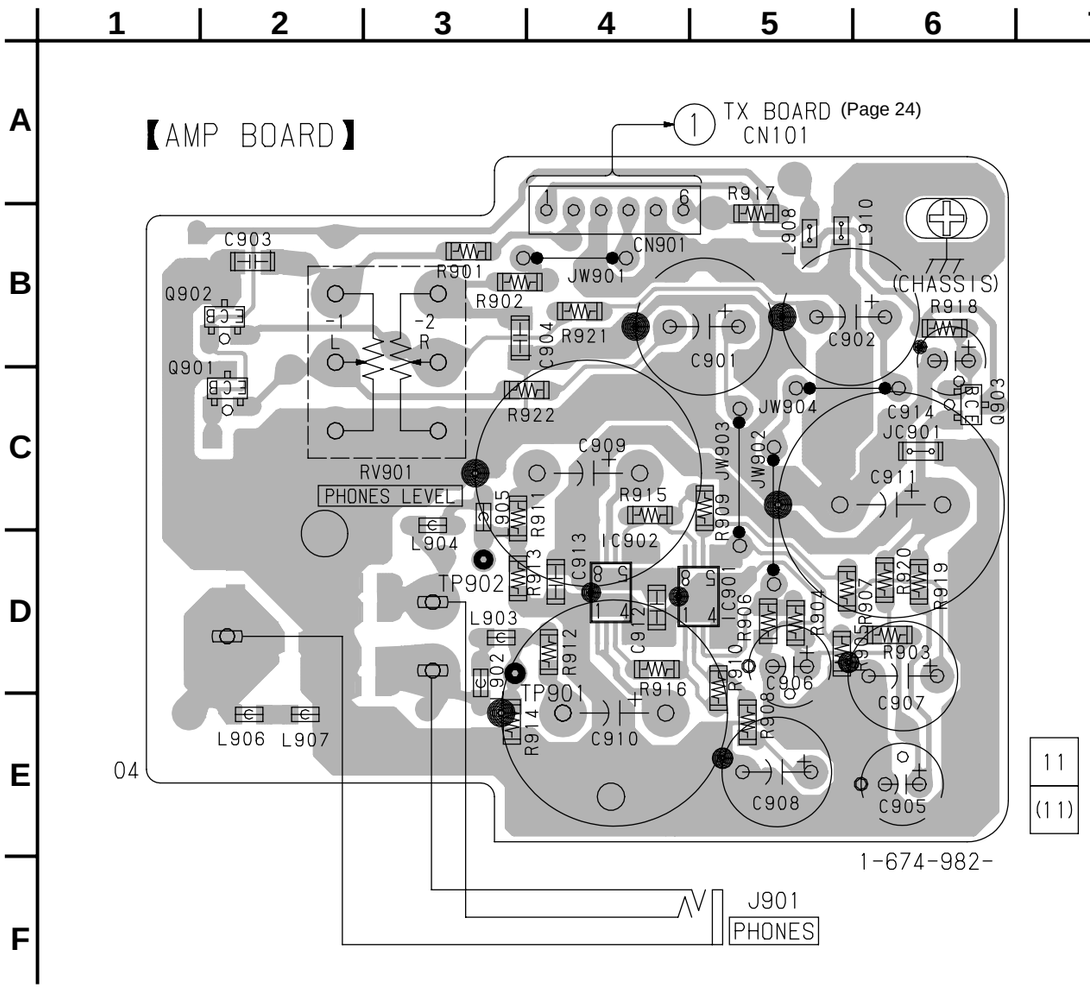
Ref. No.	Location
D201	E-13
D202	F-11
D203	F-10
D204	F-3
D205	F-6
D206	E-7
D207	F-5
D208	D-5
D209	C-5
D210	E-4
D211	D-4
D212	F-4
D213	C-4
D214	F-9
D215	F-6
D216	F-9
D301	G-13
D302	G-10
D303	G-7
D304	G-4
D305	B-13
D306	B-10
D307	B-7
D308	B-4
IC205	C-12
IC206	D-7
Q301	G-4
Q302	B-3
Q351	G-3
Q352	B-3



Note:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ▭ : panel designation.
- B+ : B+ Line.
- Power voltage is dc 9 V and fed with regulated dc power supply from external power voltage jack.
- Voltage is dc with respect to ground under no-signal condition.
  no mark : DIGITAL mode
  ( ) : ANALOG mode
  ∗ : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : RF

5-3-6. PRINTED WIRING BOARD — AMP BOARD —

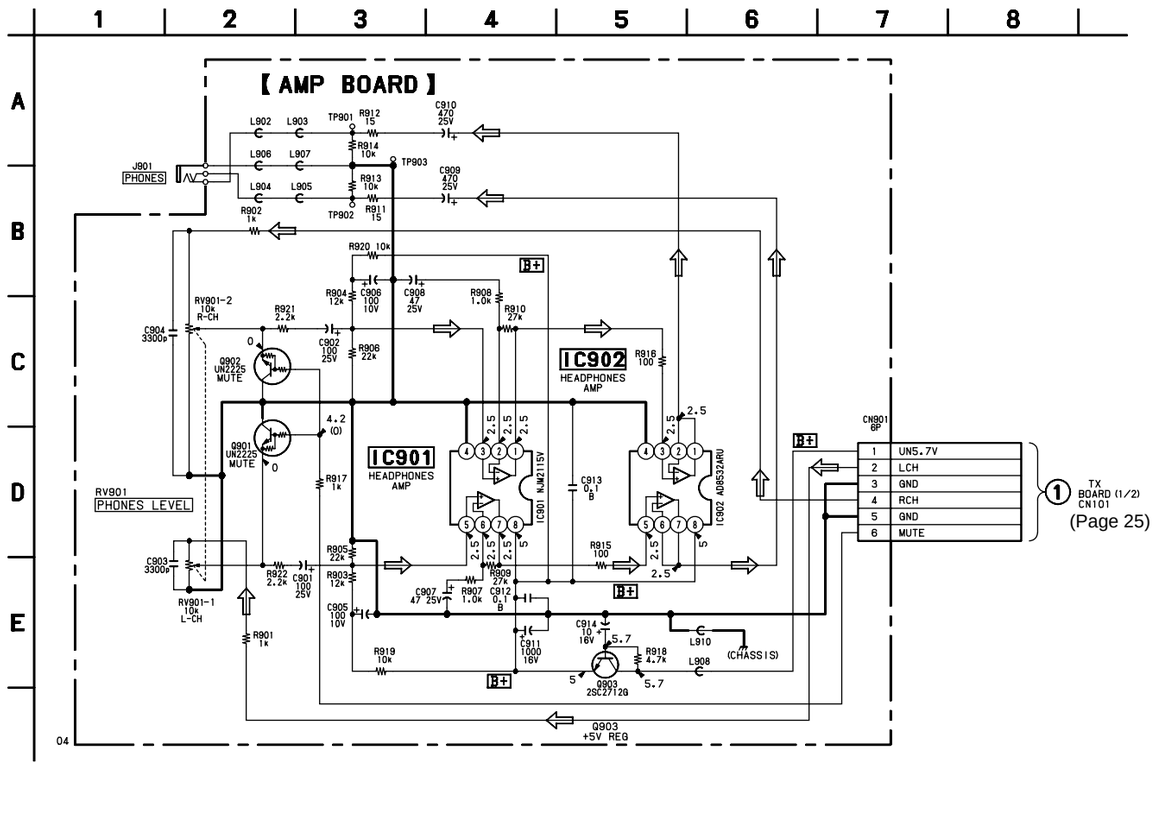


• **Semiconductor Location**

Ref. No.	Location
IC901	D-5
IC902	D-4
Q901	C-2
Q902	B-2
Q903	C-6

Note:
- ⟜—— : parts extracted from the component side.
- ▒▒▒ : Pattern from the side which enables seeing.

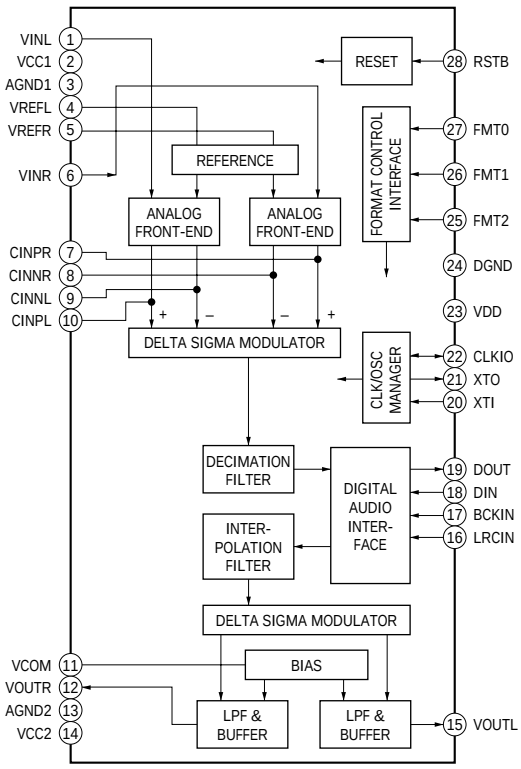
5-3-7. SCHEMATIC DIAGRAM — AMP BOARD —



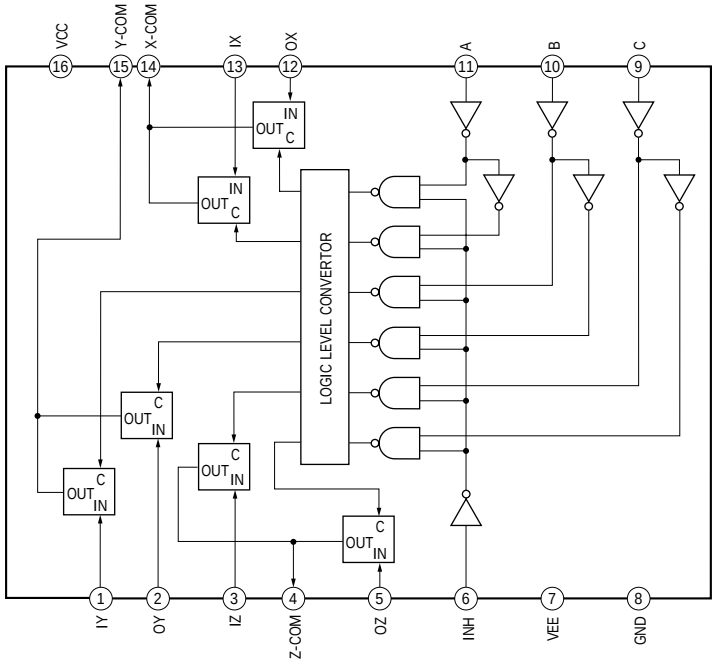
Note:
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ▭ : panel designation.
- B + : B+ Line.
- Power voltage is dc 9 V and fed with regulated dc power supply from external power voltage jack.
- Voltage is dc with respect to ground under no-signal condition.
  no mark : DIGITAL/ANALOG mode
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : ANALOG

5-4. IC BLOCK DIAGRAMS

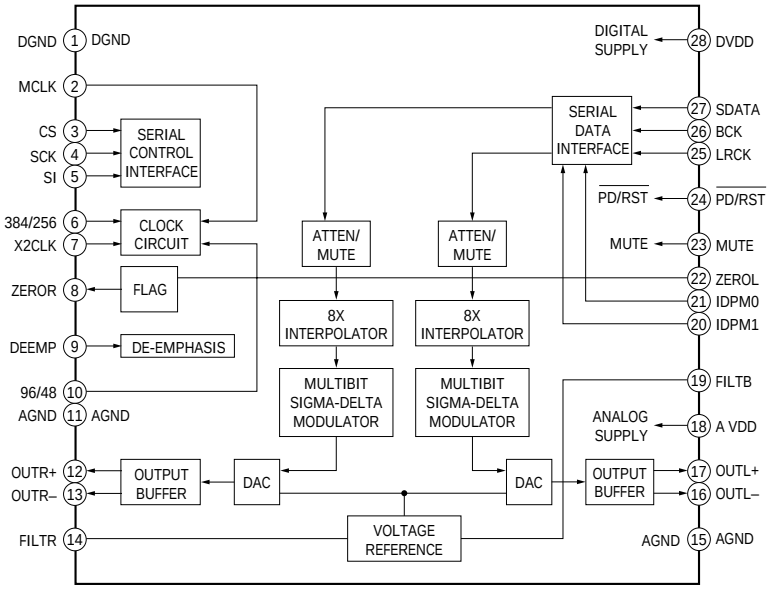
IC102 PCM3001E-T2



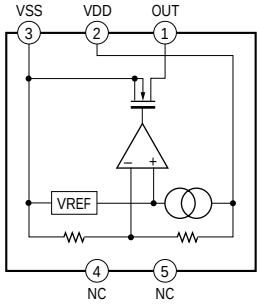
IC104 TC74HC4053AFT



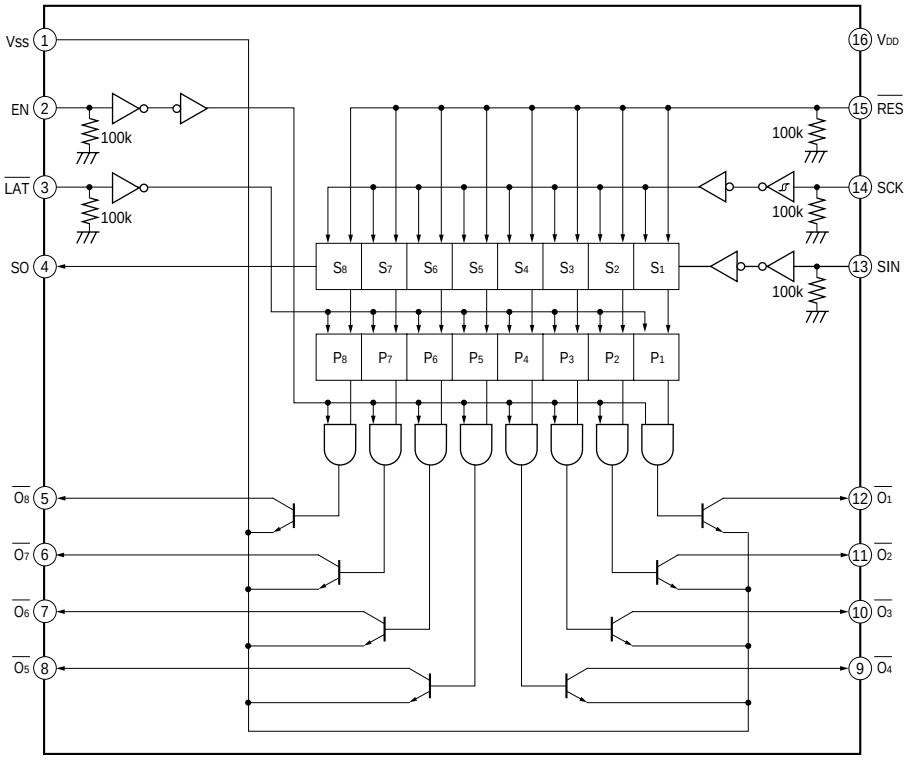
IC105 AD1855JRSRL



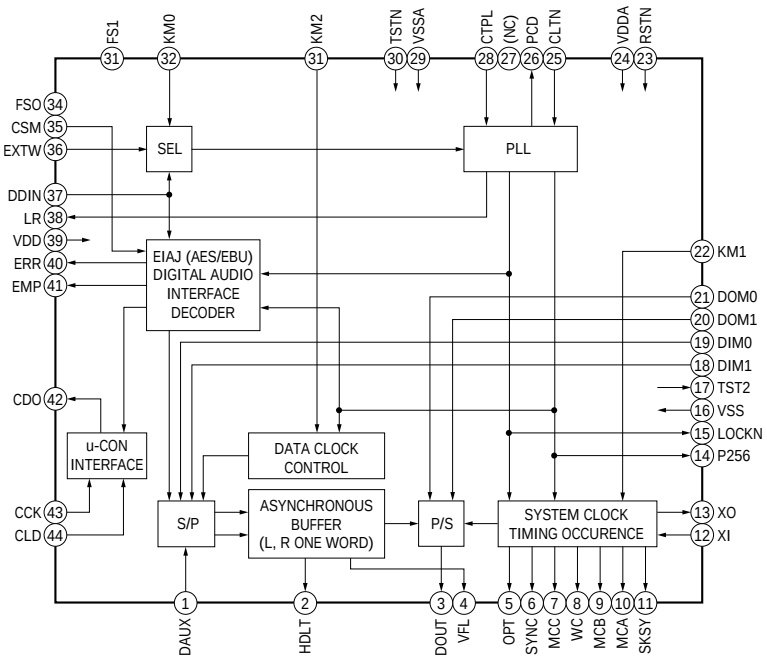
IC204 RN5VL42AA-TL



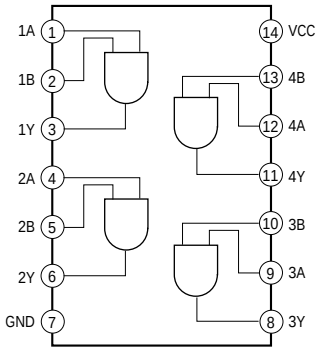
IC205, 206 µPD6345GS



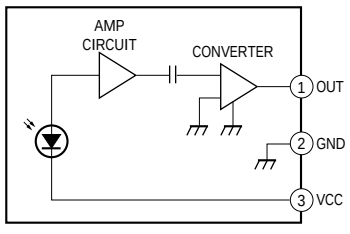
IC304 YM3436D



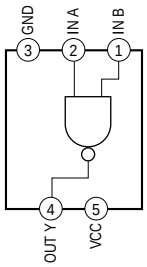
IC303 TC74VHCT08AFT (EL)



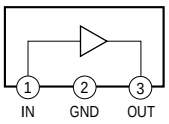
IC305 TORX178A



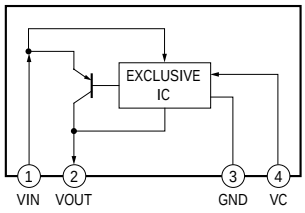
IC306 TC7SH08FU



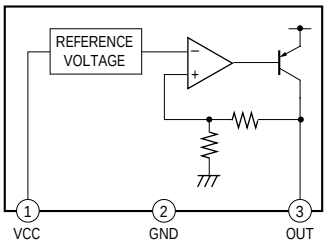
IC801 TA78057S



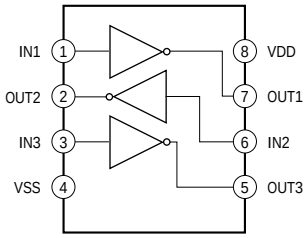
IC802 PQ05RD11
IC804, 805 PQ09RD11



IC803 BA033T

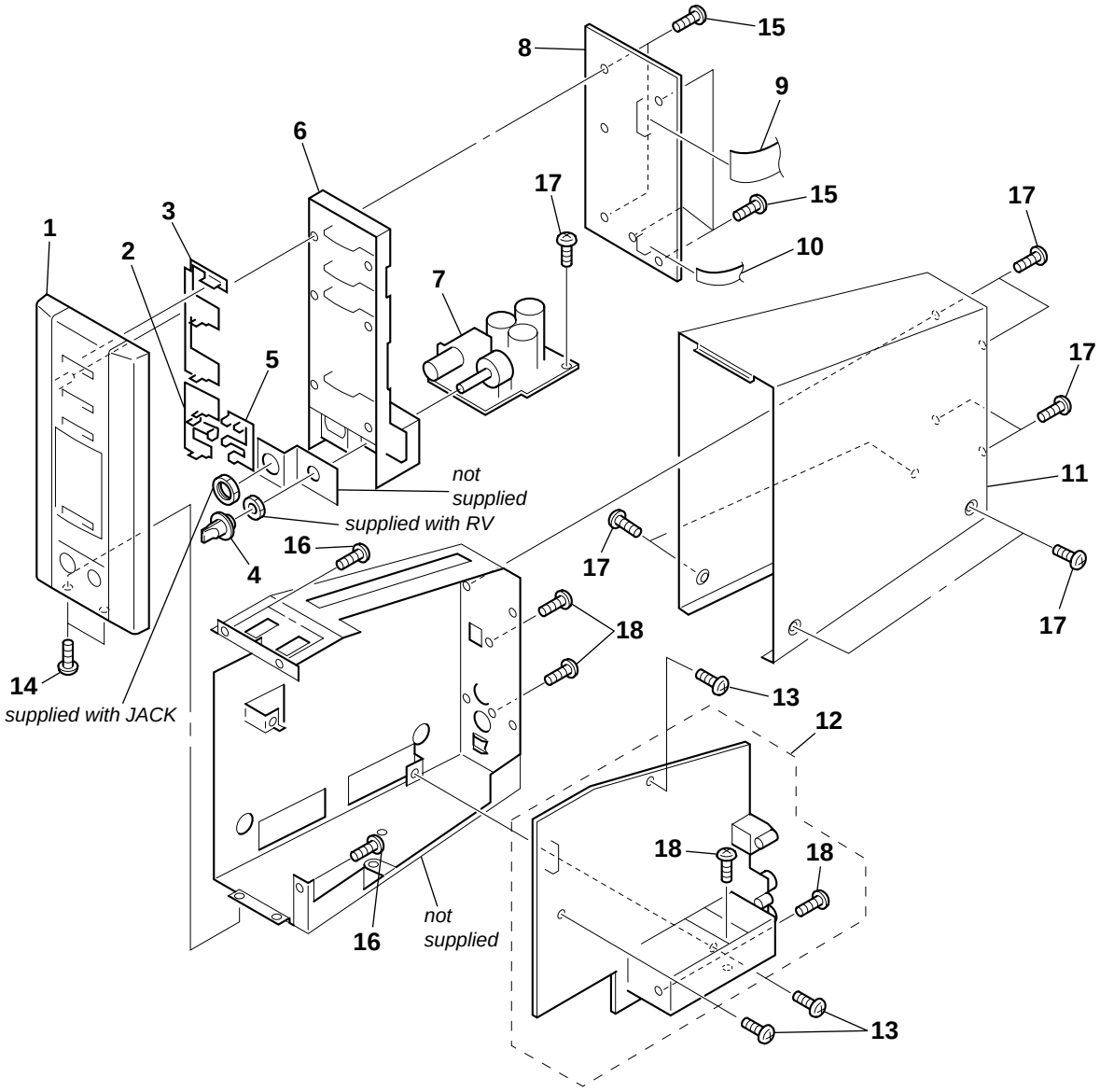


IC307 TC7W04FU



SECTION 6
EXPLODED VIEW

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE) ... (RED)
  ↑ Parts Color ↑ Cabinet's Color



Ref. No.	Part No.	Description	Remark
1	X-4952-190-1	PANEL ASSY, FRONT	
* 2	4-223-990-01	PLATE (B), LIGHT GUIDE	
* 3	4-223-989-01	PLATE (A), LIGHT GUIDE	
4	4-213-828-01	KNOB (VOL)	
* 5	4-223-991-01	PLATE (C), LIGHT GUIDE	
6	4-223-999-01	PANEL, SUB	
* 7	A-4542-611-A	AMP BOARD, COMPLETE	
* 8	A-4542-612-A	LED BOARD, COMPLETE	
9	1-790-200-11	WIRE, PARALLEL 12P	
10	1-790-199-11	WIRE, PARALLEL 6P	
11	X-4952-191-1	COVER ASSY	
* 12	A-4542-613-A	TX BOARD, COMPLETE	
13	3-922-535-11	SCREW (+BTT)	
14	4-224-922-01	SCREW (2.6X6) (S TITE)	
15	7-685-105-19	SCREW +P 2X8 TYPE2 NON-SLIT	
16	7-685-645-79	SCREW +P 3X6 TYPE2 NON-SLIT	
17	7-685-791-04	SCREW +PTT 2.6X5 (S)	
18	7-685-647-79	SCREW +BVTP 3X8 TYPE2 IT-3	

SECTION 7
ELECTRICAL PARTS LIST

AMP **LED**

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : µ, for example:
  uA.. : µA.. uPA.. : µPA..
  uPB.. : µPB.. uPC.. : µPC.. uPD.. : µPD..
- CAPACITORS
  uF : µF
- COILS
  uH : µH

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	A-4542-611-A	AMP BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C901	1-115-197-11	ELECT	100uF	20%	25V
C902	1-115-197-11	ELECT	100uF	20%	25V
C903	1-104-545-11	FILM CHIP	0.0033uF	5%	16V
C904	1-104-545-11	FILM CHIP	0.0033uF	5%	16V
C905	1-124-584-00	ELECT	100uF	20%	10V
C906	1-124-584-00	ELECT	100uF	20%	10V
C907	1-127-694-11	ELECT	47uF	20%	25V
C908	1-127-694-11	ELECT	47uF	20%	25V
C909	1-115-198-11	ELECT	470uF	20%	25V
C910	1-115-198-11	ELECT	470uF	20%	25V
C911	1-127-693-51	ELECT	1000uF	20%	16V
C912	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C913	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C914	1-124-233-11	ELECT	10uF	20%	16V
		< IC >			
IC901	8-759-358-47	IC NJM2115V(TE2)			
IC902	8-759-648-12	IC AD8532ARU-REEL			
		< JACK >			
J901	1-766-850-11	JACK (LARGE TYPE) (PHONES)			
		< JUMPER RESISTOR>			
JC901	1-216-296-91	SHORT	0		
		< FERRITE BEAD >			
L902	1-414-235-22	FERRITE BEAD INDUCTOR			
L903	1-414-235-22	FERRITE BEAD INDUCTOR			
L904	1-414-235-22	FERRITE BEAD INDUCTOR			
L905	1-414-235-22	FERRITE BEAD INDUCTOR			
L906	1-414-235-22	FERRITE BEAD INDUCTOR			
L907	1-414-235-22	FERRITE BEAD INDUCTOR			
L908	1-414-235-22	FERRITE BEAD INDUCTOR			
L910	1-414-235-22	FERRITE BEAD INDUCTOR			
		< TRANSISTOR >			
Q901	8-729-043-69	TRANSISTOR UN2225-(TX).SO			
Q902	8-729-043-69	TRANSISTOR UN2225-(TX).SO			
Q903	8-729-230-49	TRANSISTOR 2SC2712-YG			

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R901	1-216-049-11	RES,CHIP	1K	5%	1/10W
R902	1-216-049-11	RES,CHIP	1K	5%	1/10W
R903	1-216-075-00	METAL CHIP	12K	5%	1/10W
R904	1-216-075-00	METAL CHIP	12K	5%	1/10W
R905	1-216-081-00	METAL CHIP	22K	5%	1/10W
R906	1-216-081-00	METAL CHIP	22K	5%	1/10W
R907	1-216-049-11	RES,CHIP	1K	5%	1/10W
R908	1-216-049-11	RES,CHIP	1K	5%	1/10W
R909	1-216-083-00	METAL CHIP	27K	5%	1/10W
R910	1-216-083-00	METAL CHIP	27K	5%	1/10W
R911	1-216-005-00	METAL CHIP	15	5%	1/10W
R912	1-216-005-00	METAL CHIP	15	5%	1/10W
R913	1-216-073-00	METAL CHIP	10K	5%	1/10W
R914	1-216-073-00	METAL CHIP	10K	5%	1/10W
R915	1-216-025-11	RES,CHIP	100	5%	1/10W
R916	1-216-025-11	RES,CHIP	100	5%	1/10W
R917	1-216-049-11	RES,CHIP	1K	5%	1/10W
R918	1-216-065-11	RES,CHIP	4.7K	5%	1/10W
R919	1-216-073-00	METAL CHIP	10K	5%	1/10W
R920	1-216-073-00	METAL CHIP	10K	5%	1/10W
R921	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R922	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
		< VARIABLE RESISTOR >			
RV901	1-237-671-11	RES, VAR, CARBON 10K/10K (PHONES LEVEL)			
**********					
*	A-4542-612-A	LED BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C201	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C202	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C203	1-124-589-11	ELECT	47uF	20%	16V
C204	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C205	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C206	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C207	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C209	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C210	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C211	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C212	1-163-031-11	CERAMIC CHIP	0.01uF		50V

LED **TX**

Ref. No.	Part No.	Description			Remark
C213	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C290	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C301	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C351	1-126-382-11	ELECT	100uF	20%	16V
		< CONNECTOR >			
CN902	1-691-071-31	HOUSING, CONNECTOR 12P			
CN903	1-691-065-31	HOUSING, CONNECTOR 6P			
		< DIODE >			
D201	8-719-072-97	LED TLG124A(TPJ52) (POWER)			
D202	8-719-077-16	LED TLSU124(TPJ52) (DIGITAL)			
D203	8-719-077-16	LED TLSU124(TPJ52) (ANALOG)			
D204	8-719-077-16	LED TLSU124(TPJ52) (VIRTUAL)			
D205	8-719-077-16	LED TLSU124(TPJ52) (DOLBY SURROUND (DECODE MODE))			
D206	8-719-077-16	LED TLSU124(TPJ52) (DOLBY DIGITAL (DECODE MODE))			
D207	8-719-077-15	LED TLOU124(TPJ52-SONY) (L)			
D208	8-719-077-15	LED TLOU124(TPJ52-SONY) (C)			
D209	8-719-077-15	LED TLOU124(TPJ52-SONY) (R)			
D210	8-719-077-15	LED TLOU124(TPJ52-SONY) (HL)			
D211	8-719-077-15	LED TLOU124(TPJ52-SONY) (HR)			
D212	8-719-077-15	LED TLOU124(TPJ52-SONY) (LS)			
D213	8-719-077-15	LED TLOU124(TPJ52-SONY) (RS)			
D214	8-719-077-16	LED TLSU124(TPJ52) (CINEMA)			
D215	8-719-077-16	LED TLSU124(TPJ52) (DTS (DECODE MODE))			
D216	8-719-077-16	LED TLSU124(TPJ52) (MUSIC)			
D301	8-719-052-34	LED DAL5821(INFRARED EMITTER)			
D302	8-719-052-34	LED DAL5821(INFRARED EMITTER)			
D303	8-719-052-34	LED DAL5821(INFRARED EMITTER)			
D304	8-719-052-34	LED DAL5821(INFRARED EMITTER)			
D305	8-719-052-34	LED DAL5821(INFRARED EMITTER)			
D306	8-719-052-34	LED DAL5821(INFRARED EMITTER)			
D307	8-719-052-34	LED DAL5821(INFRARED EMITTER)			
D308	8-719-052-34	LED DAL5821(INFRARED EMITTER)			
		< IC >			
IC205	8-759-560-82	IC uPD6345GS-T1			
IC206	8-759-560-82	IC uPD6345GS-T1			
		< JUMPER RESISTOR>			
JC202	1-216-296-91	SHORT	0		
JC204	1-216-296-91	SHORT	0		
		< TRANSISTOR >			
Q301	8-729-106-68	TRANSISTOR 2SD1615A-GP			
Q302	8-729-106-68	TRANSISTOR 2SD1615A-GP			
Q351	8-729-106-68	TRANSISTOR 2SD1615A-GP			
Q352	8-729-106-68	TRANSISTOR 2SD1615A-GP			
		< RESISTOR >			
R201	1-216-033-00	METAL CHIP	220	5%	1/10W
R202	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R203	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R204	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R205	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R206	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R207	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R208	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R209	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R210	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R211	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R212	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R213	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R214	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R215	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R216	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R301	1-216-003-11	RES,CHIP	12	5%	1/10W
R302	1-216-003-11	RES,CHIP	12	5%	1/10W
R351	1-216-003-11	RES,CHIP	12	5%	1/10W
R352	1-216-003-11	RES,CHIP	12	5%	1/10W
		< SWITCH >			
SW1	1-571-760-11	SWITCH, KEY BOARD (POWER)			
SW2	1-571-760-11	SWITCH, KEY BOARD (INPUT)			
SW3	1-571-760-11	SWITCH, KEY BOARD (OUTPUT)			
SW4	1-571-760-11	SWITCH, KEY BOARD (EFFECT)			
**********					
*	A-4542-613-A	TX BOARD, COMPLETE **********			
	7-685-647-79	SCREW +BVTP 3X8 TYPE2 IT-3			
		< CAPACITOR >			
C5	1-124-234-00	ELECT	22uF	20%	16V
C6	1-124-589-11	ELECT	47uF	20%	16V
C7	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C8	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C9	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C10	1-163-107-00	CERAMIC CHIP	39PF	5%	50V
C11	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C12	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C13	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C34	1-124-589-11	ELECT	47uF	20%	16V
C36	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C37	1-124-589-11	ELECT	47uF	20%	16V
C38	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C39	1-124-589-11	ELECT	47uF	20%	16V
C40	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C55	1-124-234-00	ELECT	22uF	20%	16V
C56	1-124-589-11	ELECT	47uF	20%	16V
C57	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C58	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C59	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C60	1-163-109-00	CERAMIC CHIP	47PF	5%	50V

Ref. No.	Part No.	Description			Remark
C61	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C62	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C63	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C101	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C102	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C103	1-124-233-11	ELECT	10uF	20%	16V
C104	1-124-233-11	ELECT	10uF	20%	16V
C107	1-124-233-11	ELECT	10uF	20%	16V
C108	1-124-233-11	ELECT	10uF	20%	16V
C109	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C110	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C111	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C112	1-126-382-11	ELECT	100uF	20%	16V
C113	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C114	1-124-584-11	ELECT	100uF	20%	6.3V
C115	1-124-584-11	ELECT	100uF	20%	6.3V
C116	1-124-233-11	ELECT	10uF	20%	16V
C117	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C118	1-124-233-11	ELECT	10uF	20%	16V
C119	1-124-233-11	ELECT	10uF	20%	16V
C120	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C121	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C122	1-124-233-11	ELECT	10uF	20%	16V
C123	1-124-233-11	ELECT	10uF	20%	16V
C124	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C125	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C126	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C127	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C128	1-124-234-00	ELECT	22uF	20%	16V
C129	1-124-234-00	ELECT	22uF	20%	16V
C130	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C131	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C132	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C133	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C136	1-104-542-11	FILM CHIP	0.0018uF	5%	50V
C137	1-104-542-11	FILM CHIP	0.0018uF	5%	50V
C138	1-104-538-11	FILM CHIP	820PF	5%	50V
C139	1-104-538-11	FILM CHIP	820PF	5%	50V
C140	1-104-532-11	FILM CHIP	270PF	5%	50V
C141	1-104-532-11	FILM CHIP	270PF	5%	50V
C142	1-126-382-11	ELECT	100uF	20%	16V
C143	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C144	1-126-382-11	ELECT	100uF	20%	16V
C145	1-124-584-11	ELECT	100uF	20%	6.3V
C146	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C150	1-124-233-11	ELECT	10uF	20%	16V
C151	1-115-197-11	ELECT	100uF	20%	25V
C152	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C153	1-128-197-11	ELECT	10uF	20%	50V
C154	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C155	1-128-197-11	ELECT	10uF	20%	50V
C156	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C160	1-115-197-11	ELECT	100uF	20%	25V

Ref. No.	Part No.	Description			Remark
C161	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C162	1-136-478-11	FILM	470PF	5%	630V
C163	1-136-478-11	FILM	470PF	5%	630V
C164	1-136-437-11	FILM	220PF	5%	630V
C165	1-136-437-11	FILM	220PF	5%	630V
C166	1-136-270-11	FILM	47PF	5%	630V
C167	1-136-270-11	FILM	47PF	5%	630V
C168	1-115-197-11	ELECT	100uF	20%	25V
C169	1-115-197-11	ELECT	100uF	20%	25V
C201	1-126-916-11	ELECT	1000uF	20%	6.3V
C202	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C203	1-126-968-11	ELECT	100uF	20%	6.3V
C204	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C205	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C206	1-126-968-11	ELECT	100uF	20%	6.3V
C207	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C208	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C209	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C210	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C301	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C302	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C303	1-124-584-11	ELECT	100uF	20%	6.3V
C304	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C305	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C306	1-124-584-11	ELECT	100uF	20%	6.3V
C307	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C308	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C309	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C310	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C311	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C312	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C313	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C314	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C315	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C316	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C317	1-130-467-00	MYLAR	470PF	5%	50V
C318	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C330	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C331	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C332	1-124-584-11	ELECT	100uF	20%	6.3V
C333	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C334	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C335	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C336	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C337	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C338	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C339	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C340	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C341	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C342	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C343	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C344	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C345	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V

TX

Ref. No.	Part No.	Description			Remark
C346	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C347	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C348	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C349	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C350	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C351	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C352	1-130-493-00	MYLAR	0.068uF	5%	50V
C353	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C354	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C355	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C360	1-124-584-11	ELECT	100uF	20%	6.3V
C361	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C362	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C363	1-163-100-00	CERAMIC CHIP	20PF	5%	50V
C364	1-163-100-00	CERAMIC CHIP	20PF	5%	50V
C365	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C366	1-124-584-11	ELECT	100uF	20%	6.3V
C367	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C368	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C369	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C380	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C800	1-128-548-11	ELECT	4700uF	20%	25V
C801	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C802	1-126-382-11	ELECT	100uF	20%	16V
C803	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C806	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C807	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C808	1-126-382-11	ELECT	100uF	20%	16V
C809	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C810	1-124-584-11	ELECT	100uF	20%	6.3V
C811	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C812	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C813	1-124-584-11	ELECT	100uF	20%	6.3V
C816	1-126-382-11	ELECT	100uF	20%	16V
		< CONNECTOR >			
* CN101	1-568-955-11	PIN, CONNECTOR 6P			
CN102	1-691-044-11	HOUSING, CONNECTOR 12P			
CN103	1-691-038-31	HOUSING, CONNECTOR 6P			
		< DIODE >			
D1	8-719-939-02	DIODE SVC203CP			
D51	8-719-939-02	DIODE SVC203CP			
D101	8-719-421-59	DIODE MA3130WA-TX			
D102	8-719-421-59	DIODE MA3130WA-TX			
D103	8-719-988-61	DIODE 1SS355TE-17			
D104	8-719-421-59	DIODE MA3130WA-TX			
D201	8-719-210-33	DIODE EC10DS2			
D202	8-719-210-33	DIODE EC10DS2			
		< IC >			
IC101	8-759-100-96	IC uPC4558G2			
IC102	8-759-490-70	IC PCM3001E-T2			

Ref. No.	Part No.	Description	Remark
IC103	8-759-161-75	IC NJM2112V(TE2)	
IC104	8-759-523-02	IC TC74HC4053AFT(E)	
IC105	8-759-648-65	IC AD1855JRSRL	
IC106	8-759-358-47	IC NJM2115V(TE2)	
IC201	8-759-666-25	IC uPD784215GC-153-8EU	
IC204	8-759-526-81	IC RN5VL42AA-TL	
IC301	8-759-643-42	IC CXD9511AQ	
IC302	8-759-582-38	IC XCB56362PV100	
IC303	8-759-491-47	IC TC74VHCT08AFT(EL)	
IC304	8-759-648-13	IC YM3436D	
IC305	8-749-923-05	IC TORX178 (DIGITAL IN)	
IC306	8-759-196-96	IC TC7SH08FU-TE85R	
IC307	8-759-082-57	IC TC7W04FU	
IC801	8-759-158-77	IC TA78057S(LBSONY)	
IC802	8-759-471-81	IC PQ05RD11	
IC803	8-759-445-59	IC BA033T	
IC804	8-759-459-99	IC PQ09RD11	
IC805	8-759-459-99	IC PQ09RD11	
		< JACK >	
J101	1-784-653-11	JACK, PHONO 2P (LINE INPUT)	
J801	1-785-066-11	JACK, DC (POLARITY UNIFIED TYPE) (DC IN 9V)	
		< COIL >	
L1	1-409-693-11	COIL (OSC)	
L2	1-412-961-11	INDUCTOR 68uH	
L51	1-409-692-11	COIL (OSC)	
L52	1-412-962-11	INDUCTOR 82uH	
L101	1-412-953-11	INDUCTOR 15uH	
L102	1-412-953-11	INDUCTOR 15uH	
L103	1-414-234-22	FERRITE BEAD INDUCTOR	
L104	1-414-235-22	FERRITE BEAD INDUCTOR	
L105	1-414-235-22	FERRITE BEAD INDUCTOR	
L106	1-414-235-22	FERRITE BEAD INDUCTOR	
L107	1-412-953-11	INDUCTOR 15uH	
L150	1-412-953-11	INDUCTOR 15uH	
L151	1-412-953-11	INDUCTOR 15uH	
L152	1-412-953-11	INDUCTOR 15uH	
L201	1-412-953-11	INDUCTOR 15uH	
L203	1-414-235-22	FERRITE BEAD INDUCTOR	
L301	1-412-953-11	INDUCTOR 15uH	
L302	1-416-668-11	INDUCTOR 10uH	
L303	1-414-234-22	FERRITE BEAD INDUCTOR	
L304	1-414-234-22	FERRITE BEAD INDUCTOR	
L305	1-414-234-22	FERRITE BEAD INDUCTOR	
L306	1-414-234-22	FERRITE BEAD INDUCTOR	
L307	1-414-234-22	FERRITE BEAD INDUCTOR	
L308	1-414-234-22	FERRITE BEAD INDUCTOR	
L310	1-412-953-11	INDUCTOR 15uH	
L315	1-414-234-22	FERRITE BEAD INDUCTOR	
L330	1-416-668-11	INDUCTOR 10uH	
L331	1-414-234-22	FERRITE BEAD INDUCTOR	
L332	1-414-234-22	FERRITE BEAD INDUCTOR	

Ref. No.	Part No.	Description			Remark
L333	1-412-953-11	INDUCTOR	15uH		
L360	1-412-953-11	INDUCTOR	15uH		
L361	1-414-234-22	FERRITE BEAD INDUCTOR			
L362	1-414-234-22	FERRITE BEAD INDUCTOR			
L363	1-414-234-22	FERRITE BEAD INDUCTOR			
L364	1-414-234-22	FERRITE BEAD INDUCTOR			
L365	1-414-234-22	FERRITE BEAD INDUCTOR			
L366	1-414-234-22	FERRITE BEAD INDUCTOR			
L367	1-412-953-11	INDUCTOR	15uH		
L368	1-414-234-22	FERRITE BEAD INDUCTOR			
L801	1-469-349-11	INDUCTOR	1uH		
L802	1-416-668-11	INDUCTOR	10uH		
		< LINE FILTER >			
LF101	1-403-601-21	FILTER, COMMON MODE			
LF801	1-416-846-21	COIL, LINE FILTER			
		< TRANSISTOR >			
Q1	8-729-920-38	TRANSISTOR	2SC2059K-N		
Q2	8-729-216-22	TRANSISTOR	2SA1162-G		
Q51	8-729-920-38	TRANSISTOR	2SC2059K-N		
Q52	8-729-216-22	TRANSISTOR	2SA1162-G		
Q101	1-801-806-11	TRANSISTOR	DTC144EKA-T146		
Q102	1-801-806-11	TRANSISTOR	DTC144EKA-T146		
		< RESISTOR >			
R7	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R8	1-216-063-11	RES,CHIP	3.9K	5%	1/10W
R9	1-216-063-11	RES,CHIP	3.9K	5%	1/10W
R10	1-216-081-00	METAL CHIP	22K	5%	1/10W
R11	1-216-107-00	METAL CHIP	270K	5%	1/10W
R12	1-216-025-11	RES,CHIP	100	5%	1/10W
R13	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R14	1-216-747-11	METAL CHIP	33K	1%	1/10W
R15	1-216-596-11	RES,CHIP	2.7K	1%	1/10W
R16	1-216-047-11	RES,CHIP	820	5%	1/10W
R30	1-216-049-11	RES,CHIP	1K	5%	1/10W
R33	1-216-049-11	RES,CHIP	1K	5%	1/10W
R57	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R58	1-216-063-11	RES,CHIP	3.9K	5%	1/10W
R59	1-216-063-11	RES,CHIP	3.9K	5%	1/10W
R60	1-216-081-00	METAL CHIP	22K	5%	1/10W
R61	1-216-107-00	METAL CHIP	270K	5%	1/10W
R62	1-216-025-11	RES,CHIP	100	5%	1/10W
R63	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R64	1-216-747-11	METAL CHIP	33K	1%	1/10W
R65	1-216-596-11	RES,CHIP	2.7K	1%	1/10W
R66	1-216-047-11	RES,CHIP	820	5%	1/10W
R101	1-216-117-00	METAL CHIP	680K	5%	1/10W
R102	1-216-117-00	METAL CHIP	680K	5%	1/10W
R103	1-216-089-11	RES,CHIP	47K	5%	1/10W
R104	1-216-089-11	RES,CHIP	47K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R105	1-216-081-00	METAL CHIP	22K	5%	1/10W
R106	1-216-081-00	METAL CHIP	22K	5%	1/10W
R109	1-216-072-00	METAL CHIP	9.1K	5%	1/10W
R110	1-216-072-00	METAL CHIP	9.1K	5%	1/10W
R111	1-216-081-00	METAL CHIP	22K	5%	1/10W
R112	1-216-081-00	METAL CHIP	22K	5%	1/10W
R113	1-216-089-11	RES,CHIP	47K	5%	1/10W
R114	1-216-089-11	RES,CHIP	47K	5%	1/10W
R115	1-216-081-00	METAL CHIP	22K	5%	1/10W
R116	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R117	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R118	1-216-089-11	RES,CHIP	47K	5%	1/10W
R119	1-216-089-11	RES,CHIP	47K	5%	1/10W
R120	1-216-049-11	RES,CHIP	1K	5%	1/10W
R121	1-216-065-11	RES,CHIP	4.7K	5%	1/10W
R122	1-216-089-11	RES,CHIP	47K	5%	1/10W
R124	1-216-021-00	METAL CHIP	68	5%	1/10W
R125	1-216-039-00	METAL CHIP	390	5%	1/10W
R130	1-216-074-00	METAL CHIP	11K	5%	1/10W
R131	1-216-074-00	METAL CHIP	11K	5%	1/10W
R134	1-216-025-11	RES,CHIP	100	5%	1/10W
R135	1-216-025-11	RES,CHIP	100	5%	1/10W
R136	1-216-073-00	METAL CHIP	10K	5%	1/10W
R137	1-216-073-00	METAL CHIP	10K	5%	1/10W
R138	1-216-073-00	METAL CHIP	10K	5%	1/10W
R139	1-216-073-00	METAL CHIP	10K	5%	1/10W
R150	1-216-296-00	SHORT	0		
R160	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R161	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R162	1-216-082-00	RES,CHIP	24K	5%	1/10W
R163	1-216-082-00	RES,CHIP	24K	5%	1/10W
R164	1-216-082-00	RES,CHIP	24K	5%	1/10W
R165	1-216-082-00	RES,CHIP	24K	5%	1/10W
R231	1-216-065-11	RES,CHIP	4.7K	5%	1/10W
R232	1-216-089-11	RES,CHIP	47K	5%	1/10W
R301	1-216-073-00	METAL CHIP	10K	5%	1/10W
R302	1-216-039-00	METAL CHIP	390	5%	1/10W
R303	1-216-039-00	METAL CHIP	390	5%	1/10W
R304	1-216-039-00	METAL CHIP	390	5%	1/10W
R305	1-216-039-00	METAL CHIP	390	5%	1/10W
R306	1-216-039-00	METAL CHIP	390	5%	1/10W
R307	1-216-039-00	METAL CHIP	390	5%	1/10W
R330	1-216-073-00	METAL CHIP	10K	5%	1/10W
R333	1-216-073-00	METAL CHIP	10K	5%	1/10W
R335	1-216-073-00	METAL CHIP	10K	5%	1/10W
R337	1-216-073-00	METAL CHIP	10K	5%	1/10W
R339	1-216-073-00	METAL CHIP	10K	5%	1/10W
R341	1-216-039-00	METAL CHIP	390	5%	1/10W
R342	1-216-039-00	METAL CHIP	390	5%	1/10W
R344	1-216-073-00	METAL CHIP	10K	5%	1/10W
R360	1-216-121-11	RES,CHIP	1M	5%	1/10W
R361	1-216-039-00	METAL CHIP	390	5%	1/10W
R362	1-216-061-00	METAL CHIP	3.3K	5%	1/10W

TX

Ref. No.	Part No.	Description			Remark
R363	1-216-025-11	RES,CHIP	100	5%	1/10W
R364	1-216-039-00	METAL CHIP	390	5%	1/10W
R365	1-216-039-00	METAL CHIP	390	5%	1/10W
R366	1-216-039-00	METAL CHIP	390	5%	1/10W
R367	1-216-039-00	METAL CHIP	390	5%	1/10W
R368	1-216-039-00	METAL CHIP	390	5%	1/10W
R369	1-216-039-00	METAL CHIP	390	5%	1/10W
R805	1-216-073-00	METAL CHIP	10K	5%	1/10W
R806	1-216-073-00	METAL CHIP	10K	5%	1/10W
		< CERMET RESISTOR >			
RV1	1-241-762-11	RES, ADJ, CERMET	2.2K		
RV51	1-241-762-11	RES, ADJ, CERMET	2.2K		
		< SWITCH >			
S101	1-554-574-21	SWITCH, SLIDE (ATT)			
		< VIBRATOR >			
X201	1-760-599-11	VIBRATOR, CERAMIC (8MHz)			
X301	1-767-878-11	VIBRATOR, CRYSTAL (12.288MHz)			
**********					
		MISCELLANEOUS			
		**********			
9	1-790-200-11	WIRE, PARALLEL 12P			
10	1-790-199-11	WIRE, PARALLEL 6P			

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